RSTS/E

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THE SOFTWARE DISPATCH

digital

RSTS/E SOFTWARE DISPATCH

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The RSTS/E Software Dispatch complements the Software Dispatch Review for RSTS/E V6C-03. New and revised Software Product Descriptions, programming notes, software problems and solutions, and documentation corrections are published here. Much of the material is developed from Software Performance Report (SPR) answers significant to the general audience and is printed here to supplement the maintenance notebook (established by the Software Dispatch Review).

PRODUCTS SUPPORTED in the RSTS/E SOFTWARE DISPATCH

APL-11 V1
ASSIST-11 V1
BASIC-PLUS-2 V1
BASIC-PLUS-2/RMS-11K V1
COBOL-11 V3
CTS11/RSTS/E V1.1
CTS-500 V3
CTS-500/2780 V3
DATATRIEVE-11 V1
DECAL V2
DECnet/E V1
DIBOL-11/DECFORM V1, V4
DMS-500 V2
FORTRAN IV/RSTS-E V2
PLOT 11/RSTS/E V1.1
RMS-11K V1.5
RPG II V8.02
RSTS/E V6C
RSTS-E/2780 V3
SORT-11 V2
VT55 BASIC-PLUS-2 V1
WISE V1

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IMPORTANT

See the new DECUS Information and Membership Form at the back of this Dispatch.

SPR USER LETTER

The Dispatch **SPR User Letter** has been revised to reflect the new SPR form which has been available and has been in distribution for several months. This new SPR form can be readily identified by the priority section which uses a 1-5 numbering scheme rather than high, medium and low. These forms can be obtained from your local Digital office or SPR Center or by requesting them from SPR Administration.

How To Make The Best Use Of The SPR Form

What We Can Do For you

1. Blank SPR forms are available upon request in the desired quantities through the SPR Administration (P.O. Box F) and your local office/SPR Center.

2. Copies of the SPR acknowledgement and answer are sent to the appropriate DIGITAL Office/SPR Center for their information.

3. Your local office is provided status for submitted SPRs upon request by contacting SPR Administration.

4. Information is provided to the pertinent District Software Managers on High Priority SPRs that are submitted by customers in their districts.

5. SPRs marked PROBLEM/Error will have a response for supported Category A and B products. These SPRs should refer to suspected deficiencies in the software.

6. SPRs marked SUGGESTION are forwarded to the pertinent software group for information purposes, and are responded to at their discretion.

What You Can Do For Us

1. Customer Name and Address and Problem Statement should always be typed or printed clearly.

2. An SPR should be submitted with only one problem on it. Putting more than one problem on an SPR can greatly lengthen the turn-around time.

3. WHENEVER POSSIBLE, SUBMIT AN SPR WITH ATTACHMENTS, SUCH AS MACHINE READABLE DATA, DETAILED INSTRUCTIONS ON HOW TO REPRODUCE THE PROBLEM, PROGRAM AND/OR DATA FILES, LISTINGS, AND CONSOLE LOG.

4. It would be most helpful to all concerned if problems with patches are reported as soon as possible.

5. For security SPRs, it is imperative that the DO NOT PUBLISH box be marked.

6. It would be helpful if tapes submitted with SPRs are labeled (track and density), and have a directory attached.

7. Should you ever receive an unacceptable SPR response, please contact us or the appropriate SPR Center so that the response may be addressed.

8. SPRs should not be used for problems concerning software policy, software distribution, or hardware. The local office should be contacted in these cases.

7.2 Commonly Used System Programs (CUSPs) Patch Levels

This report reflects the current Version/Edit level of all of the Commonly Used System Programs (CUSPs) supplied as part of the standard RSTS/E V06C-03 System Library Programs release.

System Utilities Package

BUILD	V06C-03	DIRECT	V06C-03ABCD	DISPLY	V06C-03AB	VT05	V06C-03
VT50	V06C-03	DSKINT	V06C-03	GRIPE	V06C-03	INIT	V06C-03A
INUSE	V06C-03	LOGIN	V06C-03	LOGOUT	V06C-03A	MONEY	V06C-03
ODT	V06C-03A	PLEASE	V06C-03	PRIOR	V06C-03	QUOLST	V06C-03
REACT	V06C-03	REORDR	V06C-03A	SHUTUP	V06C-03	SWITCH	V06C-03
SYSCAT	V06C-03	SYSTAT	V06C-03AB	TALK	V06C-03	TTYSET	V06C-03
UMOUNT	V06C-03ABC	UTILTY	V06C-03	UTILT1	V06C-03AB		

Data Manipulation Package

BPCREF	V06C-03A	BPCRF1	V06C-03	COPY	V06C-03	EDIT	V06C-03AB
EDITCH	V06C-03A	FILCOM	V06C-03A	FLINT	V06C-03ABC	FLX	V06C-03A
MAKRTS	V06C-03	PIPSML	V06C-03	PIPEXT	V06C-03AB	PMDUMP	V06C-03A
RUNOFF	V06C-03AB						

Error Control Package

ANALY1	V06C-03	ANALYS	V06C-03	ERRBLD	V06C-03	ERRCPY	V06C-03
ERRDET	V06C-03A	ERRDIS	V06C-03	ERRINT	V06C-03		

Backup Package

BACCOM	V06C-03ABC	BACCON	V06C-03AB	BACDEL	V06C-03	BACDIR	V06C-03AB
BACDMP	V06C-03	BACDSK	V06C-03A	BACENT	V06C-03A	BACFRM	V06C-03ABCDEF
BACLAB	V06C-03	BACLOD	V06C-03AB	BACLST	V06C-03A	BACMNT	V06C-03ABCDEF
BACPRM	V06C-03	BACKTO	V06C-03ABCD	BACKUP	V06C-03ABCD		

Spooling and Operator Services Package

OPSER	V06C-03	OPSRUN	V06C-03AB				
QUE	V06C-03ABCDEFGH	QUEMAN	V06C-03	QUMRUN	V06C-03AB		
CHARS	V06C-03	SPOOL	V06C-03	SPLIDL	V06C-03	SPLRUN	V06C-03AB
BATDCD	V06C-03	BATCH	V06C-03	BATIDL	V06C-03A		
BATDEC	V06C-03ABCDEFG	BATRUN	V06C-03ABCD				

User Environment Test Package

UETP	V06C-03A	ACCTST	V06C-03A	AC0TST	V06C-03A	AC1TST	V06C-03A
AC2TST	V06C-03A	AC3TST	V06C-03A	AC4TST	V06C-03A	AC5TST	V06C-03A
DBEXER	V06C-03	DPEXER	V06C-03	DREXER	V06C-03	DMEXER	V06C-03
DSEXER	V06C-03	DFEXER	V06C-03	DKEXER	V06C-03	DXEXER	V06C-03
MTEXER	V06C-03	DTEXER	V06C-03	CPEXER	V06C-03	CREXER	V06C-03
PPEXER	V06C-03	PREXER	V06C-03	KBEXER	V06C-03	LPEXER	V06C-03
SCRIPT	V06C-03	SCRPTB	V06C-03	CVTSCP	V06C-03	OPTPRM	V06C-03
OPTPRK	V06C-03	OPTPRB	V06C-03	TDLSRT	V06C-03	TDLXQK	V06C-03
TDLMQK	V06C-03	TDLOQK	V06C-03	TDLSQK	V06C-03A	CRFILE	V06C-03A
TAPSRT	V06C-03	TAPSRU	V06C-03	DECMRG	V06C-03A	VERIFY	V06C-03
RANMAK	V06C-03	JSTATS	V06C-03	DSTATS	V06C-03	CPUTST	V06C-03
FILMIN	V06C-03	CRUDAT	V06C-03	FLOPPY	V06C-03A	CRDATA	V06C-03A
BUILDR	V06C-03A	PKBSNE	V06C-03				

Automated Patching Facility Package

AUTOED	V06C-03	CPATCH	V06C-03	PATCPY	V06C-03	PBUILD	V06C-03ABC

DECnet/E Utilities

NCROOT	V06C-03AB	NETFNC	V06C-03	NCP	V06C-03A	NCU	V06C-03AB
NIP	V06C-03	LSN	V06C-03	TLK	V06C-03A		

RSTS/E VØ6C-Ø3
RSTS/E Initialization
INIT.SYS Program Notes

Seq 1.2.4 N

NOTE ON PUBLISHED INIT PATCHES

There currently exist, on Patch Kit "E", two autopatch command files for the initialization code, INIT.SYS. These files are INIT.CMD for VØ6C-Ø3 and INIT4.CMD for VØ6C-Ø4.

The VØ6C-Ø4 distribution was an SDC update to provide RLØ1 and RKØ7 support, and is available only on those distribution media.

INIT.CMD contains six patch files:

Seq 1.1.1 M - February 1978
Seq 1.1.2 M - March 1978
Seq 1.1.3 M - April 1978
Seq 1.1.4 M - November 1978
Seq 1.1.5 M - November 1978
Seq 1.1.6 M - February 1979

These files represent all mandatory patches published through the March 1979 RSTS/E Software Dispatch.

INIT4.CMD contains only three patch files:

Seq 1.1.4 M - November 1978
Seq 1.1.5 M - November 1978
Seq 1.1.6 M - February 1979

The coding changes contained in the patches published prior to June 1978 (i.e., Seq 1.1.1 M, Seq 1.1.2 M, Seq 1.1.3 M) were incorporated into VØ6C-Ø4 at time of release and thus do not exist in INIT4.CMD.

RSTS/E VØ6C-Ø3
RSTS/E Executive
Monitor Patches

BAD MEMORY NOT LOCKED OUT - MANDATORY MONITOR PATCH

PROBLEM:

When RSTS/E detects a memory failure (parity error or double-bit ECC error), it tries to determine which word or words caused the error. On an 11/7Ø, it does this by reading the Memory Error Address Register; on other processors it reads through memory to find words that cause errors when read. The number of bad words and the addresses of the first five are logged. If no bad words are found, no further action is taken. Otherwise, the system considers the first (lowest address) bad word to be the one that caused the failure and continues processing the error.

If the bad word is within the memory allocated to a job, that job is aborted with the "Memory Parity Error" message. Then RSTS/E tries to make the word fail again, by writing different patterns into it. If the word fails again, RSTS/E will lock out that 1K word section of memory. If the word does not fail, RSTS/E assumes that the error was not related to that particular part of memory and does not lock out any memory.

Unfortunately, many memory errors only show up when certain patterns are written into or read from the bad memory or when the memory is used under certain accessing patterns. Therefore, RSTS/E should always lock out bad memory even if it cannot duplicate the problem.

SOLUTION:

This patch causes RSTS/E to lock out the 1K word section of memory containing the first bad word whenever a memory error is logged. Note that if your system logs memory errors that are not related to a specific address (e.g., the Unibus is noisy), this patch will probably cause RSTS/E to lock out many 1K word sections of memory, reducing the amount of contiguous memory to the point that no jobs can run. It is felt that this is preferable to being able to run jobs but with no certainty that they will run to completion, due to random errors.

RSTS/E VØ6C-Ø3
RSTS/E Executive
Monitor Patches

PROCEDURE:

1. This is a required patch to the RSTS/E VØ6C executive. It must be applied to all target monitor SILs.

2. This patch may be applied with the PATCH option of INIT.SYS:

```
Option: PATCH
File to patch? <lf>       (LINE FEED for installed monitor SIL)
```

3. This patch may be applied using ONLPAT, the on-line patching program:

```
RUN $ONLPAT
Command File Name? <cr>   (RETURN for manual patch installation)
File to patch? <lf>       (LINE FEED for installed monitor SIL)
File found in account [Ø,1]
```

   For automated patching, the patch is contained in a command file ($MONITR.CMD) appearing in Patch Kit "F" or later.

4. The patch is as follows:

```
File to patch?  <lf>
Module name?  RSTS
Base address?  RTI
Offset address?  4132

Base Offset    Old       New?
??????         ØØ4132    ØØØ421       ? 4Ø4
??????         ØØ4134    Ø12737       ? ^C (up-arrow/C to exit; CTRL/C for INIT)
```

RSTS/E VØ6C-Ø3
RSTS/E Executive
Monitor Patches

Seq 3.1.6 M

SUSPENDING A JOB CRASHES SYSTEM - MANDATORY MONITOR PATCH

PROBLEM:

Setting a job's priority to -128 (by using the UTILTY SUSPEND command, for example) crashes the system if the job being suspended happened to be the running job when the suspend was actually done.

SOLUTION:

This patch solves the problem with suspending a job.

PROCEDURE:

1. This is a required patch to the RSTS/E VØ6C executive. It must be installed in all target monitor SILs.

2. If you made "simple sys calls" resident during System Generation, answer FIP to the "Module name?" question below; otherwise answer OVR as shown.

3. The patch described in Step 5 below can be installed using the PATCH option after bootstrapping your system disk:

```
Option: PATCH
File to patch? <lf>          (LINE FEED for installed monitor SIL)
```

4. This patch CANNOT be installed using ONLPAT if the file to be patched is the installed monitor SIL, because it modifies code in an overlay to refer to code in the root which depends on the patch. It can be applied on-line to any other monitor SIL:

```
RUN $ONLPAT
Command File Name? <cr>      (RETURN for manual patch installation)
File to patch? <monitor SIL>
File found in account [Ø,1]
```

For automated patching, the patch is contained in a command file ($MONITR.CMD) appearing in patch kit version "F" or later.

5. The patch is as follows:

```
Option: PATCH
File to patch? <lf>
Module name? OVR   (or FIP; see step 2, above)
Base address? UUOØST
Offset address? 53Ø
 Base   Offset  Old     New?
??????  ØØØ53Ø  Ø52737  ? <lf>          (no change; verify only)
??????  ØØØ532  Ø4ØØØØ  ? ØØ4ØØØ
??????  ØØØ534  ??????  ? ^Z           (CTRL/Z for new offset)
Offset address? ^Z                     (CTRL/Z for new base)
Base address? ^Z                       (CTRL/Z for new module)
Module name? RSTS
Base address? $$Ø3Ø1
Offset address? Ø
 Base   Offset  Old     New?
??????  ØØØØØØ  ??????  ? Q!2Ø
??????  ØØØØØ2  ??????  ? ^Z           (CTRL/Z for new offset)
Offset address? ^Z                     (CTRL/Z for new base)
Base address? $L3QTB
Offset address? 66
 Base   Offset  Old     New?
??????  ØØØØ66  ØØØØØØ  ? DMPJOB
??????  ØØØØ7Ø  ??????  ? ^Z           (CTRL/Z for new offset)
Offset address? ^Z                     (CTRL/Z for new base)
Base address? $L3QPA
Offset address? 66
 Base   Offset  Old     New?
??????  ØØØØ66  ØØØØØØ  ? EMTAP5
??????  ØØØØ7Ø  ??????  ? ^C          (up-arrow/C to exit; CTRL/C for INIT)

Option:
```

RSTS/E V06C-03 Seq 10.12.6 0
System Utilities Package
LOGIN

MAKING LOGIN HANG UP A DATASET - OPTIONAL LOGIN PATCH

PROBLEM:

Some installations may find it desirable to have LOGIN hang up the dataset if a user has failed to log in to prevent retention of a line when not actually in use.

SOLUTION:

The patching procedure detailed below will cause LOGIN to hang up the dataset in two and one-half minutes if the user fails to log in and approximately 3 seconds after the user has been denied access. (The extra 3 seconds are allotted to ensure that the entire "Access Denied" message is printed.)

This patch will have no effect on keyboards that are not connected with datasets.

PROCEDURE:

1. For purposes of the discussion, we will assume that the required program to be patched is located on the public disk structure. In the patching procedure, we will refer to the program by its most simple name format: <program name>.BAS. The person performing the patching operation should, if necessary, replace all program references with suitable text according to the requirements of the installation.

   Also, for purposes of presenting the patching procedure, we assume that the patching operation will be performed in a privileged account.

2. To apply the patch, perform the following RSTS/E system commands.

```
RUN $CPATCH<cr>
<CPATCH's header line>

File to patch - LOGIN.BAS=LOGIN.BAS<cr>
#[logfile=]<cr>
*H/2!/V<cr>
2!              PROGRAM         : LOGIN.BAS
*H/900<tab>/V<cr>
900     T%=T%+1%
*3AV<cr>
        ELSE    PRINT FNC$;"Access denied"
*2G/"/I<cr>
<lf>
<tab>\<tab>CHANGE SYS(CHR$(6%)+CHR$(9%)) TO M%<lf>
<tab>\<tab>I$=SYS(CHR$(6%)+CHR$(-9%)+CHR$(M%(2%)/2%)+CHR$(3%))<esc>*V<cr>
        \       I$=SYS(CHR$(6%)+CHR$(-9%)+CHR$(M%(2%)/2%)+CHR$(3%))
*EX<cr>
Patch from KB:[P,PN]CPATCH.CMD complete
#^Z
File to patch - ^Z

Ready
```

3. To re-compile the program and re-enter it into the system library, type the following RSTS/E commands.

```
OLD LOGIN<cr>

Ready

COMPILE SY0:$LOGIN<cr>

Ready

RUN $PIP<cr>
*=$LOGIN.BAC<232>/RE<cr>
*^Z

Ready
```

4. The person making the changes to the program should now take whatever steps are necessary, according to installation guidelines, to save the new version of the program.

5. The source (.BAS) version of the program should now be removed from the public structure by using either the UNSAVE or the KILL commands of RSTS/E.

RSTS/E V06C-03
System Utilities Package
LOGOUT

Seq 10.13.2 0

MAKING LOGOUT HANG UP A DATASET - OPTIONAL LOGOUT PATCH

PROBLEM:

Some installations may find it desirable to have LOGOUT hang up the dataset after a user has logged out to prevent the retention of a line not actually in use.

SOLUTION:

The patching procedure detailed below will cause LOGOUT to hang up the dataset approximately 20 seconds after the user has logged out. (The extra 20 seconds are allotted to ensure that the entire logout message is printed.)

This patch will have no effect on keyboards that are not connected with datasets.

PROCEDURE:

1. For purposes of the discussion, we will assume that the required program to be patched is located on the public disk structure. In the patching procedure, we will refer to the program by its most simple name format: <program name>.BAS. The person performing the patching operation should, if necessary, replace all program references with suitable text according to the requirements of the installation.

   Also, for purposes of presenting the patching procedure, we assume that the patching operation will be performed in a privileged account.

2. To apply the patch, perform the following RSTS/E system commands.

```
RUN $CPATCH<cr>
<CPATCH's header line>

File to patch - LOGOUT.BAS=LOGOUT.BAS<cr>
#[logfile=]<cr>
*H/2!/V<cr>
2!              PROGRAM         : LOGOUT.BAS
*H/9030<tab>/V<cr>
9030    CLOSE 1%
*G/1%/I<cr>
<lf>
<tab>\ L$=SYS(CHR$(6%)+CHR$(-9%)+CHR$(N%(2%)/2%)+CHR$(20%))<esc>*V<cr>
        \ L$=SYS(CHR$(6%)+CHR$(-9%)+CHR$(N%(2%)/2%)+CHR$(20%))
*EX<cr>
Patch from KB:[P,PN]CPATCH.CMD complete
#^Z
File to patch - ^Z

Ready
```

3. To re-compile the program and re-enter it into the system library, type the following RSTS/E commands.

```
OLD LOGOUT<cr>

Ready

COMPILE SYØ:$LOGOUT<cr>

Ready

RUN $PIP<cr>
*=$LOGOUT.BAC<232>/RE<cr>
*^Z

Ready
```

4. The person making the changes to the program should now take whatever steps are necessary, according to installation guidelines, to save the new version of the program.

5. The source (.BAS) version of the program should now be removed from the public structure by using either the UNSAVE or the KILL commands of RSTS/E.

RSTS/E V06C-03
Backup Package
BACCOM

Seq 13.2.3 M

COMPARE OF BAD BLOCK FILE RESTARTS INDEFINITELY - MANDATORY BACCOM PATCH

PROBLEM:

When BACCOM consistently encounters a bad block in a file that is being backed up and compared, the comparison of that file will continue to be restarted indefinitely.

SOLUTION:

The patching procedure detailed below causes BACCOM to abort the comparison of a file if an error is encountered on the third attempt to compare the file.

PROCEDURE:

1. For purposes of the discussion, we will assume that the required program to be patched is located on the public disk structure. In the patching procedure, we will refer to the program by its most simple name format: <program name>.BAS. The person performing the patching operation should, if necessary, replace all program references with suitable text according to the requirements of the installation.

   Also, for purposes of presenting the patching procedure, we assume that the patching operation will be performed in a privileged account.

2. The command file for this patch appears in patch kit version "F" or later. If you do not have this distribution you can produce a command file by specifying a file for [logfile=] in the procedure below.

   To apply the patch manually, perform the following RSTS/E system commands.

```
RUN $CPATCH<cr>
<CPATCH's header line>

File to patch - BACCOM.BAS=BACCOM.BAS<cr>
#[logfile=]<cr>
*H/PROGRAM/V<cr>
        !       PROGRAM         : BACCOM.BAS
*H/3AB/I/C/V<cr>
        !       EDIT            : 03ABC
*H/DATE/V<cr>
        !       EDIT DATE       : 04-SEP-78
*G/04-SEP-78/-9C/18-JAN-79/V<cr>
        !       EDIT DATE       : 18-JAN-79
*H/20/G/REASON/V<cr>
  !     VER/ED          EDIT DATE       REASON
*I<cr>
<lf>
  !<tab>6C-03ABC<tab>18-JAN-79<tab>ABORT A COMPARE AFTER TWO RESTARTS.<esc>*V<cr>
  !     6C-03ABC        18-JAN-79       ABORT A COMPARE AFTER TWO RESTARTS.
*H/1010<tab>/G/03AB/V<cr>
1010    I$="BACCOM      V06C-03AB"
```

```
*I/C/V<cr>
1Ø1Ø     I$="BACCOM      VØ6C-Ø3ABC"
*H/11Ø1Ø<tab>/V<cr>
11Ø1Ø    GOTO 11119Ø IF (R% AND 1%)<>Ø%
*G/11195/V<cr>
         \ ON ERROR GOTO 11195
*I<cr>
<lf>
<tab>\ R1%=R1%+1%<lf>
<tab>\ Q9%=(R1%>=3%)<lf>
<tab>\ T$="COMPARE ABORTED ON FILE - "+<lf>
<tab><tab>FNU$(C%(3%),"",-1%,Ø%) IF Q9%<lf>
<tab>\ GOSUB 22700 IF Q9%<lf>
<tab>\ ZØ%(C%(3%),3Ø%)=(ZØ%(C%(3%),3Ø%) OR 8192%) IF Q9%<lf>
<tab>\ L%=Ø% IF Q9%<lf>
<tab>\ R1%=Ø% UNLESS L%<lf>
<tab>\ GOTO 11170 IF Q9%<esc>*V<cr>
         \ GOTO 11170 IF Q9%
*EX<cr>
Patch from KB:[P,PN]CPATCH.CMD complete
#^Z
File to patch - ^Z

Ready
```

3. To re-compile the program and re-enter it into the system library, type the following RSTS/E commands.

```
OLD BACCOM<cr>

Ready

COMPILE $BACCOM<cr>

Ready

RUN $PIP<cr>
*=$BACCOM.BAC<232>/RE<cr>
*^Z

Ready
```

4. The person making the changes to the program should now take whatever steps are necessary, according to installation guidelines, to save the new version of the program.

5. The source (.BAS) version of the program should now be removed from the public structure by using either the UNSAVE or the KILL commands of RSTS/E.

RSTS/E VØ6C-Ø3 Seq 13.11.2 M
Backup Package
BACLOD Page 1 of 3

RESTORE OF MM: BACKUP SET FAILS ON MT:-ONLY SYSTEMS - MANDATORY BACLOD PATCH

PROBLEM:

A multi-volume BACKUP set created on devices with name "MM" cannot be restored on a system that does not recognize the device "MM:".

SOLUTION:

The patching procedure detailed below allows multi-volume BACKUP sets created on "MM" devices to be restored on systems with only "MT" devices.

PROCEDURE:

1. For purposes of the discussion, we will assume that the required program to be patched is located on the public disk structure. In the patching procedure, we will refer to the program by its most simple name format: <program name>.BAS. The person performing the patching operation should, if necessary, replace all program references with suitable text according to the requirements of the installation.

   Also, for purposes of presenting the patching procedure, we assume that the patching operation will be performed in a privileged account.

2. The command file for this patch appears in patch kit version "F" or later. If you do not have this distribution you can produce a command file by specifying a file for [logfile=] in the procedure below.

   To apply the patch manually, perform the following RSTS/E system commands.

```
RUN $CPATCH<cr>
<CPATCH's header line>

File to patch - BACLOD.BAS=BACLOD.BAS<cr>
#[logfile=]<cr>
*H/2!/V<cr>
2!              PROGRAM         : BACLOD.BAS
*H/6!/V<cr>
6!              EDIT            : Ø3A
*G/Ø3A/I/B/V<cr>
6!              EDIT            : Ø3AB
*H/7!/V<cr>
7!              EDIT DATE       : Ø4-SEP-78
*G/Ø4-SEP-78/-9C/18-JAN-79/V<cr>
7!              EDIT DATE       : 18-JAN-79
*H/2Ø/G/REASON/V<cr>
  !     VER/ED          EDIT DATE       REASON
*I<cr>
<lf>
  !<tab>VØ6C-Ø3AB<tab><tab>18-JAN-79<tab>FIX ERROR MESSAGE REPORTING.<esc>*V<cr>
  !     VØ6C-Ø3AB               18-JAN-79       FIX ERROR MESSAGE REPORTING.
*H/1Ø1Ø<tab>/G/Ø3A/V<cr>
```

```
1Ø1Ø    I$="BACLOD      VØ6C-Ø3A"
*I/B/V<cr>
1Ø1Ø    I$="BACLOD      VØ6C-Ø3AB"
*H/1110<tab>/G/Z$=SYS/V<cr>
        \ Z$=SYS(CHR$(6%)+CHR$(-10%)+D$)
*ØJKI<cr>
<tab>\ CHANGE SYS(CHR$(6%)+CHR$(-10%)+D$) TO Z%<lf>
<esc>*V<cr>
        \ M%=STATUS AND 255%
*AI<cr>
<tab>\ CHANGE SYS(CHR$(6%)+CHR$(-10%)+CHR$(Z%(23%))+CHR$(Z%(24%))) TO Z%<lf>
<tab>\ D6%=Z%(7%)+SWAP%(Z%(8%))<lf>
<tab>\ D7%=Z%(9%)+SWAP%(Z%(10%))<lf>
<esc>*V<cr>
        \ B1%=ZØ%(C%(1%),17%)
*H/12Ø1Ø<tab>/V<cr>
12Ø1Ø   F%=Ø%
*H/T%=T2%/V<cr>
                \ ZØ%(Ø%,27%),C%(1%)=T1% IF T%=T2%
*I<cr>
<lf>
<tab><tab>\ CHANGE SYS(CHR$(6%)+CHR$(-10%)<lf>
<tab><tab><tab>+RAD$(ZØ%(T1%,6%))+RAD$(ZØ%(T1%,7%))+":")<lf>
<tab><tab><tab>TO Z1%<lf>
<tab><tab>\ ZØ%(T1%,6%)=D6% IF SWAP%(Z1%(3Ø%))<Ø%<lf>
<tab><tab>\ ZØ%(T1%,7%)=D7% IF SWAP%(Z1%(3Ø%))<Ø%<esc>*V<cr>
                \ ZØ%(T1%,7%)=D7% IF SWAP%(Z1%(3Ø%))<Ø%
*EX<cr>
Patch from KB:[P,PN]CPATCH.CMD complete
#^Z
File to patch - ^Z

Ready
```

3. To re-compile the program and re-enter it into the system library, type the following RSTS/E commands.

```
OLD BACLOD<cr>

Ready

COMPILE $BACLOD<cr>

Ready

RUN $PIP<cr>
*=$BACLOD.BAC<232>/RE<cr>
*^Z

Ready
```

4. The person making the changes to the program should now take whatever steps are necessary, according to installation guidelines, to save the new version of the program.

5. The source (.BAS) version of the program should now be removed from the public structure by using either the UNSAVE or the KILL commands of RSTS/E.

RSTS/E VØ6C-Ø3
Backup Package
BACLST

Seq 13.12.2 M

BACLST PRINTS UNINTELLIGIBLE ERROR MESSAGE - MANDATORY BACLST PATCH

PROBLEM:

Under certain transfer error conditions, such as making an attempt to back up a file with an illegal file name, BACLST may print an unintelligible error message.

SOLUTION:

The patching procedure detailed below will cause BACLST to report the RSTS/E error message in the cases where it now prints an unintelligible error message.

PROCEDURE:

1. For purposes of the discussion, we will assume that the required program to be patched is located on the public disk structure. In the patching procedure, we will refer to the program by its most simple name format: <program name>.BAS. The person performing the patching operation should, if necessary, replace all program references with suitable text according to the requirements of the installation.

   Also, for purposes of presenting the patching procedure, we assume that the patching operation will be performed in a privileged account.

2. The command file for this patch appears in patch kit version "F" or later. If you do not have this distribution you can produce a command file by specifying a file for [logfile=] in the procedure below.

   To apply the patch manually, perform the following RSTS/E system commands.

```
RUN $CPATCH<cr>
<CPATCH's header line>

File to patch - BACLST.BAS=BACLST.BAS<cr>
#[logfile=]<cr>
*H/2!/V<cr>
2!              PROGRAM          : BACLST.BAS
*H/6!/V<cr>
6!              EDIT             : Ø3
*G/Ø3/I/A/V<cr>
6!              EDIT             : Ø3A
*H/7!/V<cr>
7!              EDIT DATE        : 3Ø-NOV-77
*G/3Ø-NOV-77/-9C/19-JAN-79/V<cr>
7!              EDIT DATE        : 19-JAN-79
*H/2Ø/G/REASON/V<cr>
  !     VER/ED          EDIT DATE        REASON
*I<cr>
<lf>
  !<tab>6C-Ø3A<tab><tab>19-JAN-79<tab>FIX ERROR MESSAGE REPORTING.<esc>*V<cr>
  !     6C-Ø3A          19-JAN-79        FIX ERROR MESSAGE REPORTING.
*H/1Ø1Ø<tab>/G/Ø3/V<cr>
```

```
1Ø1Ø     I$="VØ6C-Ø3"
*I/A/V<cr>
1Ø1Ø     I$="VØ6C-Ø3A"
*H/2511Ø<tab>/V<cr>
2511Ø    IF E%=Ø% THEN
*I<cr>
Z$=""<lf>
<tab>\ IF E% THEN<lf>
<esc>*V<cr>
IF E%=Ø% THEN
*4KV<cr>
         \       Z$="CAN'T FIND FILE" IF (E% AND 63%)=5%
*JDV<cr>
                 Z$="CAN'T FIND FILE" IF (E% AND 63%)=5%
*5AKV<cr>
         \       Z$="LENGTH CHANGE" IF E%=256%+16%
*4AKV<cr>
         \       IF P3%<>Ø% THEN
*I<cr>
<tab>\<tab>Z$=CVT$$(RIGHT(SYS(CHR$(6%)+CHR$(9%)+CHR$(E% AND 127%))<lf>
<tab><tab><tab>,4%),36%) UNLESS LEN(Z$)<lf>
<esc>*V<cr>
         \       IF P3%<>Ø% THEN
*EX<cr>
Patch from KB:[P,PN]CPATCH.CMD complete
#^Z
File to patch - ^Z

Ready
```

3. To re-compile the program and re-enter it into the system library, type the following RSTS/E commands.

```
OLD BACLST<cr>

Ready

COMPILE $BACLST<cr>

Ready

RUN $PIP<cr>
*=$BACLST.BAC<232>/RE<cr>
*^Z

Ready
```

4. The person making the changes to the program should now take whatever steps are necessary, according to installation guidelines, to save the new version of the program.

5. The source (.BAS) version of the program should now be removed from the public structure by using either the UNSAVE or the KILL commands of RSTS/E.

RSTS/E V06C-03
Backup Package
BACKTO

Seq 13.15.4 M

BACKTO PRINTS UNINTELLIGIBLE ERROR MESSAGE - MANDATORY BACKTO PATCH

PROBLEM:

Under certain transfer error conditions, such as making an attempt to back up a file with an illegal file name, BACKTO may print an unintelligible error message.

SOLUTION:

The patching procedure detailed below will cause BACKTO to report the RSTS/E error message in the cases where it now prints an unintelligible error message.

NOTE

BACKTO patch seq 13.15.3 M updated the patch level in the comments at the start of the program but did not update the patch level in the code at line 1010. This patch also corrects this problem, bringing the in-code patch level up to date.

PROCEDURE:

1. For purposes of the discussion, we will assume that the required program to be patched is located on the public disk structure. In the patching procedure, we will refer to the program by its most simple name format: <program name>.BAS. The person performing the patching operation should, if necessary, replace all program references with suitable text according to the requirements of the installation.

   Also, for purposes of presenting the patching procedure, we assume that the patching operation will be performed in a privileged account.

2. The command file for this patch appears in patch kit version "F" or later. If you do not have this distribution you can produce a command file by specifying a file for [logfile=] in the procedure below.

   To apply the patch manually, perform the following RSTS/E system commands.

```
RUN $CPATCH<cr>
<CPATCH's header line>

File to patch - BACKTO.BAS=BACKTO.BAS<cr>
#[logfile=]<cr>
*H/PROGRAM/V<cr>
 !                PROGRAM          : BACKTO.BAS
*H/EDIT/G/3ABC/I/D/V<cr>
 !                EDIT             : 03ABCD
*H/DATE/G/02-JAN-79/-9C/19-JAN-79/V<cr>
 !                EDIT DATE        : 19-JAN-79
*H/20/G/REASON/V<cr>
  !      VER/ED          EDIT DATE       REASON
*I<cr>
<lf>
```

```
  !<tab>6C-03ABCD<tab>19-JAN-79<tab>FIX ERROR MESSAGE ROUTINE.<esc>*V<cr>
  !     6C-03ABCD       19-JAN-79       FIX ERROR MESSAGE ROUTINE.
*H/1010<tab>/G/03AB/V<cr>
1010    I$="BACKTO      V06C-03AB"
*I/CD/V<cr>
1010    I$="BACKTO      V06C-03ABCD"
*H/25110<tab>/V<cr>
25110   IF E%=0% THEN
*I<cr>
Z$=""<lf>
<tab>\ IF E% THEN<lf>
<esc>*V<cr>
IF E%=0% THEN
*4KV<cr>
        \       Z$="CAN'T FIND FILE" IF (E% AND 63%)=5%
*JDV<cr>
                Z$="CAN'T FIND FILE" IF (E% AND 63%)=5%
*2AV<cr>
        \       Z$="PROTECTION VIOLATION" IF E%=1024%+10%
*KV<cr>
       \        Z$="LENGTH CHANGE" IF E%=256%+16%
*4AV<cr>
        \       IF P3%<>0% THEN
*I<cr>
<tab>\<tab>Z$=CVT$$(RIGHT(SYS(CHR$(6%)+CHR$(9%)+CHR$(E% AND 127%))<lf>
<tab><tab><tab>,4%),36%) UNLESS LEN(Z$)<lf>
<esc>*V<cr>
        \       IF P3%<>0% THEN
*EX<cr>
Patch from KB:[P,PN]CPATCH.CMD complete
#^Z
File to patch - ^Z

Ready
```

3. To re-compile the program and re-enter it into the system library, type the following RSTS/E commands.

```
OLD BACKTO<cr>

Ready

COMPILE $BACKTO<cr>

Ready

RUN $PIP<cr>
*=$BACKTO.BAC<232>/RE<cr>
*^Z

Ready
```

4. The person making the changes to the program should now take whatever steps are necessary, according to installation guidelines, to save the new version of the program.

5. The source (.BAS) version of the program should now be removed from the public structure by using either the UNSAVE or the KILL commands of RSTS/E.

RSTS/E VØ6C-Ø3
Spooling and Operator Services Package
SPLRUN

Seq 14.1Ø.3 M

SPOOLED FILES MAY BE DELETED - MANDATORY SPLRUN PATCH

PROBLEM:

Files queued /DE may be deleted even though they are not successfully printed.

SOLUTION:

The following patch will prevent the deletion of files if the print job is aborted.

PROCEDURE:

1. For purposes of the discussion, we will assume that the required program to be patched is located on the public disk structure. In the patching procedure, we will refer to the program by its most simple name format: <program name>.BAS. The person performing the patching operation should, if necessary, replace all program references with suitable text according to the requirements of the installation.

   Also, for purposes of presenting the patching procedure, we assume that the patching operation will be performed in a privileged account.

2. The command file for this patch appears in patch kit version "F" or later. If you do not have this distribution you can produce a command file by specifying a file for [logfile=] in the procedure below.

   To apply the patch manually, perform the following RSTS/E system commands.

```
RUN $CPATCH<cr>
<CPATCH's header line>

File to patch - SPLRUN.BAS=SPLRUN.BAS<cr>
#[logfile=]<cr>
*H/6!/V<cr>
! 6!              EDIT            : Ø3A
*G/Ø3A/I/B/V<cr>
! 6!              EDIT            : Ø3AB
*H/7!/V<cr>
! 7!              EDIT DATE       : 24-MAR-78
*G/24-MAR-78/-9C/22-JAN-79/V<cr>
! 7!              EDIT DATE       : 22-JAN-79
```

```
*H/21!/G/REASON/V<cr>
! 21!   VER/ED          EDIT DATE       REASON
*I<cr>
<lf>
    !<tab>6C-Ø3AB<tab><tab>22-JAN-79<tab>DELETE FILE UNLESS ABORT.<esc>*V<cr>
    !   6C-Ø3AB          22-JAN-79       DELETE FILE UNLESS ABORT.
*H/1Ø1Ø<tab>/V<cr>
1Ø1Ø    I$="VØ6C-Ø3A"
*G/Ø3A/I/B/V<cr>
1Ø1Ø    I$="VØ6C-Ø3AB"
*H/14730<tab>T$/V<cr>
14730   T$ = "Job Aborted because of File Error(s)"
*AI<cr>
<tab>\ RØ%,ZØ%(J9%,31%)=RØ% OR 1%<lf>
<esc>*V<cr>
        \  GO SUB 161ØØ IF HEADFL%
*EX<cr>
Patch from KB:[P,PN]CPATCH.CMD complete
#^Z
File to patch - ^Z

Ready
```

3. To re-compile the program and re-enter it into the system library, type the following RSTS/E commands.

```
OLD SPLRUN<cr>

Ready

COMPILE $SPLRUN<cr>

Ready
```

4. The person making the changes to the program should now take whatever steps are necessary, according to installation guidelines, to save the new version of the program.

5. The source (.BAS) version of the program should now be removed from the public structure by using either the UNSAVE or the KILL commands of RSTS/E.

RSTS/E VØ6C-Ø3
Automated Patching Facility
Package Notes

PATCH KIT "E" AVAILABLE

NOTE

This article originally appeared as the the first file on Patch Kit "E", PATCHE.DOC. This article contains corrected text in the discussion of INIT.SYS patching and should be used in place of PATCHE.DOC. Please also refer to Seq 1.2.4 N, published this month in the RSTS/E Software Dispatch.

I. INTRODUCTION

Patch Kit 'E', now available from SDC, contains mandatory patches published through January, 1979 in the RSTS/E Software Dispatch and includes all patches in previous patch kits.

II. APPLICATION OF PATCHES TO INITIALIZATION CODE, MONITOR, AND BASIC-PLUS RUN-TIME SYSTEM CODE

The patches in the command files INIT.CMD, MONITR.CMD, BASIC.CMD, and RJ278Ø.CMD can be applied in two ways: at SYSGEN time and on-line.

A. SYSGEN Patching

1. Initialization code - INIT.SYS - Some of the patches in the INIT.CMD command file must be applied manually at SYSGEN time using the PATCH option if certain hardware configurations are present, on VØ6C-Ø3 only.

   a)Seq 1.1.2 M must be applied if the system contains the DC11 hardware option. Follow the procedure in the March, 1978 issue of the RSTS/E Software Dispatch.

   b)Seq 1.1.3 M must be applied if the processor is a PDP 11/6Ø. Follow the procedure in the April, 1978 issue of the RSTS/E Software Dispatch.

   If neither of these hardware configurations apply it is preferable to patch INIT.SYS using ONLPAT because it eliminates the possibility of manual entry errors.

   Please note also that two command files now exist for the Initialization code - INIT.SYS. These files are:

INIT.CMD for VØ6C-Ø3
INIT4.CMD for VØ6C-Ø4

and these files include all patches published through February, 1979 in the RSTS/E Software Dispatch.

The VØ6C-Ø4 distribution was an SDC update to provide RLØ1 and RKØ7 support, and is available only on those distribution media. The command file for VØ6C-Ø4, INIT4.CMD, contains three less patches than the command file for VØ6C-Ø3, INIT.CMD, because the problems to which these patches were applied were corrected in VØ6C-Ø4.

2. Monitor and BASIC-PLUS RTS code - The patches in the MONITR.CMD, BASIC.CMD, and RJ278Ø.CMD command files can be called in automatically during SYSGEN if you answer affirmatively to the following questions during the SYSGEN dialogue:

QUESTION		AFFIRMATIVE RESPONSE
Generate monitor?	#Y #	<LF>
Monitor patching?	#??#	Y<RET>
Patch file name?	#$MONITR.CMD#	<LF>
Generate BASIC-PLUS?	#Y #	<LF>
BASIC-PLUS patching?	#??#	Y<RET>
Patch file name?	#$BASIC.CMD#	<LF>
278Ø support?	#NO#	Y<RET>
278Ø patching?	#??#	Y<RET>
Patch file name?	#$RJ278Ø.CMD#	<LF>

NOTE

The patch file names on the patch kit are the same as the default names printed by SYSGEN, and the defaults should be accepted.

B. ON-LINE PATCHING

On-Line patching is accomplished after the system is installed and running. The following procedure should be followed:

1. Create a privileged account to hold the patch files and copy the files to that account using the program $PATCPY. In response the the 'PACKAGES TO PATCH?' prompt, type the response: ALL <RET>.

2. Run the program $ONLPAT giving the appropriate response for the particular command file you are applying.

"COMMAND FILE NAME?" RESPONSE	"FILE TO PATCH?" RESPONSE
INIT.CMD or INIT4.CMD	INIT.SYS<RET>
MONITR.CMD	<LF> assumes installed Monitor SIL
BASIC.CMD	BASIC.RTS<RET> *
RJ278Ø.CMD	<LF>

* - The name of your BASIC-PLUS Run-Time System

Please note that this patch kit includes all previous patches so that if you are patching code on-line which has already had previous patch kits applied, only the most recent patches will be applied. Patches which have already been applied will fail.

III. APPLICATION OF PATCHES TO THE STANDARD CUSP LIBRARY, OPTIONAL CUSP LIBRARIES, AND OPTIONAL SOFTWARE

All other patches must be applied using the program PBUILD. Please note that to use this program:

1. RT11 Run-Time System must be installed in your system
2. PIP.SAV must reside in account [1,2]
3. You must be logged into a privileged account
4. That account must contain the patch files copied from Patch Kit 'E' (see II.B.1 above)
5. When patching CUSP libraries, the distribution medium for that library must be physically and, if disk, logically mounted

The format of the PBUILD dialogue is as follows:

```
RUN $PBUILD
PBUILD  VØ6C-Ø3 RSTS/E VØ6C-Ø3
Read files to patch from <SY:[1,2]>:          (1)
Compile patched programs:                     (2)
Library device <SY:[1,2]>:                    (3)
System device <SYØ:[1,2]>:                    (4)
Save patched sources?                         (5)
#                                             (6)
```

Question 1 should be answered with the device name on which the distribution medium is mounted if patching CUSP libraries and and with a LINE FEED when patching run-time systems.

Question 2 should always be answered: YES<RET>

Questions 3 and 4 should be answered: <LF>

Question 5 may be answered Yes or No depending on your system or installations requirements.

Question 6 is the name of the command file you are applying.

The first package to be patched must be the patch command file:

BUILD.CMD

This directs the patching of all those files that are installed during the system build procedure following a successful SYSGEN. These files include DIRECT, SYSTAT, and PBUILD. In particular, there are patches for PBUILD that are required for installing patches to other packages. After patching PBUILD using the BUILD.CMD command file, PBUILD must be terminated and run again to insure that you are using the patched version for installing other patches.

Other CUSP library patch command files are:

SPLER.CMD
BIGPRG.CMD
BACKUP.CMD

These contain all patches published through January, 1979 and include those of all previous Patch Kits.

The patch command file for UETP is:

UETP.CMD

This command file directs patching of all published patches through January, 1979. All PBUILD patches that are on Patch Kit 'E' must be installed in the version of PBUILD that is used to patch UETP. There are no new UETP patch files since Patch Kit "D".

Patch command files for optional run-time systems include:

RSX.CMD
RT11.CMD

and contain all mandatory patches published through January,1979.

The patch command file for patching DECnet/E utilities is:

NETBLD.CMD

This command file directs patching of all DECnet/E utilities patches published through January, 1979. There are no new patch files since Patch Kit "D".

The three hardware configuration-dependent patch command files for BASIC-PLUS-2 V1.5 are:

BP2EIS.CMD
BP2FIS.CMD
BP2FPP.CMD

which contain all patches published through January, 1979. The patch command file PA38Ø7.CMD should be used only if the BASIC-PLUS-2/RMS interface was also installed when BASIC-PLUS-2 was installed.

The three hardware configuration-dependent patch command files for BASIC-PLUS-2 V1.Ø4 are:

BP2EIS.V1Ø
BP2FIS.V1Ø
BP2FPP.V1Ø

which contain all patches from Patch Kit 'D'. There are no new patch files. The patch command file PA27Ø7.CMD should be used only if the BASIC-PLUS-2/RMS interface was also installed when BASIC-PLUS-2 V1.Ø4 was installed.

The patch command file for COBOL V3.Ø is:

COBOL.V3Ø

There are no additional patches for COBOL V3.Ø since Patch Kit 'C'. When patching COBOL V3.Ø, it is imperative that the responses to PBUILD's prompts be answered correctly:

Read files to patch from <SY:[1,2]>:

This response must be the device and account specification where the file CBLLIB resides; for example, [1,1] must be entered. Similarly, the response to PBUILD's prompt:

Write patched sources to <SY:[1,2]>:

must also specify where the updated CBLLIB file should be stored.

Patch Kit 'E' contains patch files for all patches to RPG II V8.Ø2 published through January, 1979. The patch command file is:

RPG.CMD

if you used the control file RPGGEN.CTL to install RPG on your system. The patch command file:

RPGNB2.CMD

is used if you used the control file RPGNB2.CTL to install RPG.

The patch command file for the RMS Run-Time System is:

RMS11.CMD

There are no new patch files since Patch Kit "D".

The patch command file for DMS5ØØ VØ2 is:

DMS5ØØ.CMD

There are no new patch files since Patch Kit 'C'.

The patch command file for SORT-11 VØ2 is

SORT.CMD

which contains one of the two mandatory patches published through January, 1979.

PA3ØØ2.ØØ1, contained on the kit, patches the SORT object file SIORMS.OBJ and builds a new module ORG.OBJ. After this patch has been applied and before any sorts are run, you MUST re-task build any program that uses these routines, including any program that has a specific reference to file 'ORG' along with the reference to 'SIORMS'. Consult your SORT-11 installation instructions to determine which tasks to rebuild.

A patch file for the patch described in Seq 3Ø.2.2 M is not included because it is necessary to refer to the map created at installation time for specific values.

Patch Kit "E" contains files for the patching of DIBOL V4C and DIBOL V4D. These command files are:

DIBOL.CMD for V4C
DIBOLR.CMD for V4D

and contain all patches published through January, 1979.

RSTS/E VØ6C-Ø3
Documentation
RSTS/E VØ6C System User's Guide

BATCH $SORT COMMAND SWITCHES NOT DOCUMENTED

Section 22.3.12 of the RSTS/E VØ6C System User's Guide omitted information on some switches of the $SORT command used with the BATCH program. The following discussion is the complete information for this section. Future revisions of the manual will reflect this updated information.

22.3.12 $SORT

The $SORT control statement runs the PDP-11 Sort program SORT11 (not the obsolete program SORT.BAC). For more information on the PDP-11 program SORT11, refer to the PDP-11 SORT Reference Manual.

The format of the $SORT control statement is as follows:

$SORT [job switches] [output file [/OUTPUT]] [input file [/INPUT]] [spec file /SPEC]

Job switches define the sort process and can be abbreviated to the first three letters. When more than one switch is specified, they are separated by slashes (/). The following are valid job switches:

/ALL[OCATION]:n	For output, specifies the initial space allocation for the file. The value n is in the range of Ø to 65535 blocks. If no allocation is specified, the default depends on the sort process (see /PROCESS). If /PROCESS is Record or Tag, the default is the input file size. If /PROCESS is Index or Address Routing, the default is the number of records sorted.
/BLO[CKSIZE]:n	For magnetic tape input or output, specifies the tape block size. The default is a 512-byte block.
/BUC[KETSIZE]:n	For output, specifies the file's bucketsize. The default is the bucketsize of the input file.
/CON[TIGUOUS]	For output, specifies that the file will be contiguous. The default is non-contiguous.
/DEV[ICE]:x	For input, specifies the device to be used for scratch files, where x is a 1- to 4-character device name.
/FIL[ES]:n	For input, specifies the number of scratch files, where n is in the range of 3 to 1Ø.
/FOR[MAT]:x:n	For input, specifies the file's record format (x) and maximum record size (n). The value x can be FIXED, STREAM, VARIABLE, or UNKNOWN and can be abbreviated to the first letter. This switch is required. The default format is VARIABLE; the default record size is the size of the largest record.
/IND[EXEDSEQUENTIAL]:x	For input, specifies indexed file organization. The value x specifies the number of keys.

/KEY[S]:abm.n	For input, specifies the sorting key field. This switch is required if no specification file appears in the command line. A maximum of 1Ø keys (separated by colons) can be specified as follows: /KEY:abm.n:abm.n:...abm.n Refer to the PDP-11 SORT Reference Manual for a definition of the key fields.
/PRO[CESS]:x	For input, specifies the sorting process. The value x can be R (Record sort, the default), T (Tag sort), A (Address Routing) or I (Index sort).
/REL[ATIVE]	For output, specifies relative file organization.
/SEQ[UENTIAL]	For output, specifies sequential file organization.
/SIZ[E]:n	For output, specifies the file's cluster size.

A maximum of three file specifications (separated by spaces) can appear in the $SORT control statement: an input file, an output file, and a specification file. To distinguish these files, the following switches, which can be abbreviated to the first three letters, are used:

/INP[UT]	The file to be sorted.
/OUT[PUT]	The file to contain the sorted data.
/SPE[CIFICATION]	The file which contains the conrol information for the sorting process.

A file specification without a switch is used as the file to be sorted. If the /SPECIFICATION switch is used, the /KEYS and /PROCESS switches must not appear in the command line. If a specification file is not given in the control statement, the /KEYS switch must be included in the command field to control the sorting process. The /FORMAT switch must always be included in the command field. If an extension is omitted from the file specification, BATCH uses .SRT as the extension.

RSTS/E V6C
RSX EMULATOR PACKAGE
EDT.TSK

"NO SUCH FILE" ERROR SUBSEQUENTLY CAUSES EDITOR CRASH (SPR 11-2Ø735 BK)

Positioning to %E after an INCLUDE of a non-existent file causes EDT to crash.

The problem is being researched and the correction will be available in a future release of the product. Until then, if the "No such file," error is printed after an include command, position to some other line in the file before proceeding.

DIBOL-11/DECFORM V4D
for RSTS/E V6C
DIBOLR V4D-00

Seq 36.5.6 M

READ AFTER WRITE ON RELATIVE FILES - MANDATORY RUNTIME SYSTEM PATCH (ES)

PROBLEM:

DIBOLR does not update the record number properly on relative files when a READ fails or a READS is executed. A subsequent WRITE statement then fails.

SOLUTION:

The following patch procedure corrects the problem.

PROCEDURE:

1. For purposes of the discussion, we will assume that the DIBOLR Runtime System file is located on the public disk structure. In the patching procedure, we will, therefore, refer to that file by its simplest form: [0,1]DIBOLR.RTS If the file is not available as assumed, you should replace all of the file references according to the requirements of your installation.

   Also, for purposes of presenting the patching procedure, we assume that the patching procedure will be performed in a privileged account, and that all other necessary files are located in that account.

2. The command file for this patch appears in patch kit version F or later. If you do not have that distribution, you can produce a command file by specifying a file for [logfile=] in the procedure below.

   To apply the patch manually, perform the following RSTS/E system commands.

```
RUN $ONLPAT
Command file name? [logfile=]
File to patch? [0,1]DIBOLR.RTS
Base address? $DEFEX
Offset address? 7305
 Base   Offset  Old     New?
143512  007305     040  ? 101
143512  007306     040  ? ^Z
Offset address? ^Z
Base address? $UNLOK
Offset address? 6
 Base   Offset  Old     New?
165336  000006  001252  ? ^Z
Offset address? ^Z
Base address? $INPT
Offset address? 3514
 Base   Offset  Old     New?
161646  003514  012746  ? 4737
161646  003516  000001  ? START$+0
161646  003520  010605  ? ^Z
```

```
Offset address? 3636
 Base   Offset  Old     New?
161646  003636  012746  ? 4737
161646  003640  000001  ? START$+0
161646  003642  010605  ? ^Z
Offset address? ^Z
Base address? START$
Offset address? 0
 Base   Offset  Old     New?
140000  000000  000000  ? 105762
140000  000002  000000  ? 3
140000  000004  000000  ? 3014
140000  000006  000000  ? 16605
140000  000010  000000  ? 2
140000  000012  000000  ? 16500
140000  000014  000000  ? 34
140000  000016  000000  ? 1407
140000  000020  000000  ? 5001
140000  000022  000000  ? 156501
140000  000024  000000  ? 21
140000  000026  000000  ? 4737
140000  000030  000000  ? $DEALO
140000  000032  000000  ? 5065
140000  000034  000000  ? 34
140000  000036  000000  ? 11646
140000  000040  000000  ? 12766
140000  000042  000000  ? 1
140000  000044  000000  ? 2
140000  000046  000000  ? 207
140000  000050  000000  ? ^Z
Offset address? ^Z
Base address? $INPT
Offset address? 1432
 Base   Offset  Old     New?
161646  001432  016501  ? 4737
161646  001434  000006  ? START$+50
161646  001436  020127  ? ^Z
Offset address? ^Z
```

```
Base address? START$
Offset address? 50
 Base   Offset  Old     New?
140000  000050  000000  ? 105762
140000  000052  000000  ? 3
140000  000054  000000  ? 3017
140000  000056  000000  ? 16500
140000  000060  000000  ? 34
140000  000062  000000  ? 1010
140000  000064  000000  ? 12701
140000  000066  000000  ? 4
140000  000070  000000  ? 4737
140000  000072  000000  ? $ALOCB
140000  000074  000000  ? 10065
140000  000076  000000  ? 34
140000  000100  000000  ? 110165
140000  000102  000000  ? 21
140000  000104  000000  ? 16520
140000  000106  000000  ? 46
140000  000110  000000  ? 16520
140000  000112  000000  ? 50
140000  000114  000000  ? 16501
140000  000116  000000  ? 6
140000  000120  000000  ? 207
140000  000122  000000  ? ^Z
Offset address? ^Z
Base address? $INPT
Offset address? 1630
 Base   Offset  Old     New?
161646  001630  020127  ? 4737
161646  001632  176660  ? START$+122
161646  001634  001714  ? ^Z
Offset address? ^Z
Base address? START$
Offset address? 122
 Base   Offset  Old     New?
140000  000122  000000  ? 2007
140000  000124  000000  ? 105762
140000  000126  000000  ? 3
140000  000130  000000  ? 3004
140000  000132  000000  ? 16500
140000  000134  000000  ? 34
140000  000136  000000  ? 5020
140000  000140  000000  ? 5010
140000  000142  000000  ? 20127
140000  000144  000000  ? 176660
140000  000146  000000  ? 207
140000  000150  000000  ? ^Z
Offset address? ^Z
Base address? ^Z
File to patch? ^Z
Patch from KB:[P,PN]ONLPAT.CMD complete
#^Z
File to patch - ^Z

Ready
```

3. The Runtime System is ready for use. Your programs do not have to be re-task=built or re-compiled. The Runtime System does have to be reloaded:

```
RUN $UTILTY.BAC<cr>
#UNLOAD DIBOLR<cr>
#EXIT<cr>

Ready
```

4. The command file and other files used during the patching procedures should now be removed from the public structure.

DIBOL-11/DECFORM V4D
for RSTS/E V6C
DIBOLR V4D-00A

OUT OF MEMORY ERROR - MANDATORY RUNTIME SYSTEM PATCH (FH)

PROBLEM:

On some systems opening any file with mode 'O' generates the fatal error number nine: 'OUT OF MEMORY'.

SOLUTION:

The following patch corrects the problem.

PROCEDURE:

1. For purposes of the discussion, we will assume that the DIBOLR Runtime System file is located on the public disk structure. In the patching procedure, we will, therefore, refer to that file by its simplest form: [0,1]DIBOLR.RTS If the file is not available as assumed, you should replace all of the file references according to the requirements of your installation.

   Also, for purposes of presenting the patching procedure, we assume that the patching procedure will be performed in a privileged account, and that all other necessary files are located in that account.

2. The command file for this patch appears in patch kit version "F" or later. If you do not have that distribution, you can produce a command file by specifying a file for [logfile=] in the procedure below.

   To apply the patch manually, perform the following RSTS/E system commands.

```
RUN $ONLPAT
Command file name? [logfile=]
File to patch? [0,1]DIBOLR.RTS
Base address? $DEFEX
Offset address? 7305
 Base   Offset  Old     New?
143512  007305     101  ? 102
143512  007306     040  ? ^Z
Offset address? ^Z
Base address? $INPT
Offset address? 620
 Base   Offset  Old     New?
161646  000620  010062  ? 4737
161646  000622  000012  ? START$+150
161646  000624  004767  ? ^Z
Offset address? ^Z
```

```
Base address? START$
Offset address? 150
 Base   Offset  Old     New?
140000  000150  000000  ? 10062
140000  000152  000000  ? 12
140000  000154  000000  ? 5001
140000  000156  000000  ? 156501
140000  000160  000000  ? 40
140000  000162  000000  ? 207
140000  000164  000000  ? ^Z
Offset address? ^Z
Base address? ^Z
File to patch? ^Z

Patch from KB:[P,PN]ONLPAT.CMD complete
#^Z
File to patch - ^Z

Ready
```

3. The Runtime System is ready for use. Your programs do not have to be re-task=built or re-compiled. The Runtime System does have to be reloaded:

```
RUN $UTILTY.BAC<cr>
 UNLOAD DIBOLR<cr>
 EXIT<cr>

Ready
```

4. The command file and other files used during the patching procedures should now be removed from the public structure.

DIBOL-11/DECFORM V4D
for RSTS/E V6C
DECFORM

DATA ENTRY FOR OTHER PROGRAMS GIVES BAD MESSAGE - MANDATORY DECFORM PATCH (GH)

PROBLEM:

If you do data entry using DECFORM for other programs, either in COBOL, BASIC-PLUS-2, or DIBOL, using the supplied linkage routines GTFORM and XLINK, you will get an erroneous "IS SCREEN OK?" message at the beginning of the form.

SOLUTION:

Installing the corrected module detailed below into the System Library will correct the problem. The command file for this patch appears in patch kit version "F" or later.

PROCEDURE:

1. Build the following DIBOL-11 source file using an editor and name it: DECF1R.DBL.

```
        SUBROUTINE DECF1R
ERRNO,  D
        COMMON
CHAR,   A1
VALUE,  D3
SHIFT,  D2
EROR,   A32
DISP1,  A6
DISP2,  A4
NOSCM,  D1
        RECORD
MSG,    A13,'KEY TOO BIG'
,       A13,'FILE IS FULL'
,       A13,'RECORD IN USE'
,       A13,'NO SUCH KEY'
,       A13,'NO DUP KEYS'
,       A13,'FILE OVERFLOW'
,       A13,'ILLEGAL KEY'
,       A13,'IS RECORD OK?'
,       A13,'OK TO DELETE?'
,       A13,'IS KEY OK?'
,       A13,'IS SCREEN OK?'
,       A13,'BAD CHARACTER'
,       A13,'BAD TERMINAL '
```

DIBOL-11/DECFORM V4D
for RSTS/E V6C
DECFORM

Seq 36.6.4 M
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```
        PROC

                IF(ERRNO.EQ.0) GOTO TYP
                IF(ERRNO.EQ.1) GOTO TYPM1
                SHIFT=ERRNO
                IF(SHIFT.LT.0) SHIFT=-SHIFT
                IF(SHIFT.NE.11) GOTO TYPIT
                IF(NOSCM.EQ.0) GOTO TYPIT
                CHAR='Y'
                XCALL DECML (CHAR,VALUE)
                NOSCM=
                RETURN
        TYPIT,
                EROR=MSG(SHIFT)
        TYP,    DISPLAY (1,DISP1,EROR)
        TYPM1, XCALL FLAGS ('01101000')         ;TURN OFF L.C.
                ACCEPT (1,CHAR)
                XCALL FLAGS ('01101010')        ;TURN ON L.C.
                XCALL DECML (CHAR,VALUE)
                DISPLAY (1,DISP2,27,'K')
                IF(ERRNO.LT.0.AND.VALUE.NE.127) GOTO TYP
                RETURN
                END
```

2. Compile the DIBOL-11 source file as follows:

```
RUN $DICOMP.TSK
*DECF1R=DECF1R/W

    NO  ERRORS DETECTED
*^Z                                             (CTRL/Z to exit)
```

3. Replace the corrected module in the library and set its protection code:

```
RUN $PIP.SAV
*SY:$=DECF1R.OBJ
*SY:$DECF1R.OBJ<40>/RE
*^Z                                             (CTRL/Z to exit)
```

4. It is necessary to re-build your DECFORM forms in order to incorporate this correction.

DIBOL-11/DECFORM V4D
for RSTS/E V6C
DECFORM

ERRORS IN THE GTFORM DATA ENTRY SUBROUTINE - OPTIONAL DECFORM PATCH (GH)

PROBLEM:

The data entry subroutine GTFORM that has been provided with DECFORM will have a few problems when used with only three arguments or under certain error conditions.

SOLUTION:

Installing the optional patch detailed below into the GTFORM.OBJ object module will correct the problems. The command file for this patch appears in patch kit version "F" or later.

PROCEDURE:

1. Build the following correction file using an editor and name it: GTFORM.COR.

```
        .TITLE  GTFORM
        .IDENT  "06C04A"
        .PSECT  GTFORM
$PC=.
.=$PC+26
        JMP     PAT1
.=$PC+220
        CALL    PAT2
.=$PC+446
        BNE     70$
        NOP
.=$PC+500
70$:
.=$PC+516
        TSTB    @#402
.=$PC+574
DATA:
.=$PC+616
RCVRID:         .BLKB   6
PAT1:   MOVB    @#402,(R4)
        CLRB    RCVRID
        RETURN
PAT2:   TST     R3
        BNE     10$
        TST     (SP)+
        RETURN
10$:    MOV     (R5)+,DATA
        RETURN
        .END
```

DIBOL-11/DECFORM V4D
for RSTS/E V6C
DECFORM

Seq 36.6.5 O
2 of 2

2. Assemble the correction file as follows:

```
RUN $MAC.TSK
MAC>GTFORM.PAT=GTFORM.COR
MAC>^Z                                          (CTRL/Z to exit)
```

3. Copy the original module from the library as follows:

```
RUN $PIP.SAV
*GTFORM.OLD=SY:$GTFORM.OBJ
*^Z                                             (CTRL/Z to exit)
```

4. Run the patch utility to merge the correction into the old module:

```
RUN $PAT.TSK
PAT>GTFORM=GTFORM.OLD/CS:102356,GTFORM.PAT/CS:017103
PAT>^Z                                          (CTRL/Z to exit)
```

5. Replace the patched module in the library and set its protection code:

```
RUN $PIP.SAV
*SY:$=GTFORM.OBJ
*SY:$GTFORM.OBJ<40>/RE
*^Z                                             (CTRL/Z to exit)
```

6. It is necessary to re-task build your BASIC-PLUS-2 or COBOL programs in order to incorporate this correction. It is not necessary to re-compile.

DIBOL-11/DECFORM V4C
   for RSTS/E V6C
DECFORM

ERRORS IN THE GTFORM DATA ENTRY SUBROUTINE - OPTIONAL DECFORM PATCH (GH)

PROBLEM:

The data entry subroutine GTFORM that has been provided with DECFORM will have a few problems when used with only three arguments or under certain error conditions.

SOLUTION:

Installing the optional patch detailed below into the GTFORM.OBJ object module will correct the problems. The command file for this patch appears in patch kit version "F" or later.

PROCEDURE:

1. Build the following correction file using an editor and name it: GTFORM.COR.

```
        .TITLE  GTFORM
        .IDENT  "06C04A"
        .PSECT  GTFORM
$PC=.
.=$PC+26
        JMP     PAT1
.=$PC+220
        CALL    PAT2
.=$PC+446
        BNE     70$
        NOP
.=$PC+500
70$:
.=$PC+516
        TSTB    @#402
.=$PC+574
DATA:
.=$PC+616
RCVRID:         .BLKB   6
PAT1:   MOVB    @#402,(R4)
        CLRB    RCVRID
        RETURN
PAT2:   TST     R3
        BNE     10$
        TST     (SP)+
        RETURN
10$:    MOV     (R5)+,DATA
        RETURN
        .END
```

DIBOL-11/DECFORM V4C
for RSTS/E V6C
DECFORM

2. Assemble the correction file as follows:

```
RUN $MAC.TSK
MAC>GTFORM.PAT=GTFORM.COR
MAC>^Z                                          (CTRL/Z to exit)
```

3. Copy the original module from the library as follows:

```
RUN $PIP.SAV
*GTFORM.OLD=SY:$GTFORM.OBJ
*^Z                                             (CTRL/Z to exit)
```

4. Run the patch utility to merge the correction into the old module:

```
RUN $PAT.TSK
PAT>GTFORM=GTFORM.OLD/CS:102356,GTFORM.PAT/CS:017103
PAT>^Z                                          (CTRL/Z to exit)
```

5. Replace the patched module in the library and set its protection code:

```
RUN $PIP.SAV
*SY:$=GTFORM.OBJ
*SY:$GTFORM.OBJ<40>/RE
*^Z                                             (CTRL/Z to exit)
```

6. It is necessary to re-task build your BASIC-PLUS-2 or COBOL programs in order to incorporate this correction. It is not necessary to re-compile.

DATATRIEVE-11 V1.1
for RSTS/E V6C
DTR

MINUS DOES NOT WORK (SPR 11-21392 JS)

A minus sign does not work when used in conjunction with a floating dollar sign.

This is a restriction in Version 1.1. It will be researched for a future version.

DATATRIEVE-11 V1.1
for RSTS/E VØ6C
DTR

SORT MALFUNCTION FOR COMP-1, COMP-2, AND COMP-6 FIELDS

PROBLEM:

The Datatrieve-11 Version 1.1 internal sort malfunctions when attempting to sort a domain or collection based on COMP-1 (single precision floating), COMP-2 (double precision floating), or COMP-6 (COBOL V3 binary) datatypes. No error message is given; the resulting sort order, however, is incorrect.

SOLUTION:

Install the patch by the following procedure.

PROCEDURE:

1. Login into the account from which Datatrieve-11 was originally installed. The files DTRSTS.TKB, DTRSTS.ODL, and RMSRST.ODL should remain from Datatrieve-11 installation in that account.

2. Build the following correction file: DTRQ01.MAC

```
        .TITLE  ST      DTRQ01 -- CORRECTION FILE FOR MODULE ST
        .PSECT  ST
        .IDENT  /V01.11/
ST=.
.=ST+1324
        JSR     PC,STPAT
.=ST+652
        CMP     FDDTYP(R3),#DTCBIN
        .PSECT  PATCH
STPAT:  MOV     2(R0),R2
        ASR     R3
        BIS     #100000,(R4)
10$:    MOV     (R4)+,(R2)+
        SOB     R3,10$
        RTS     PC
        .END
```

3. Extract the original module from DTRLIB.

```
RUN $LBR
ST.OLD=[1,1]DTRLIB/EX:ST
```

4. Assemble the correction file.

```
RUN $MAC
DTRQ01=DTRQ01
```

5. Run the "PAT" utility to correct the object module.

```
RUN $PAT
ST=ST.OLD,DTRQ01/CS:16526
```

6. Re-insert module into library.

```
RUN $LBR
[1,1]DTRLIB/RP=ST
```

7. Re-TASK-BUILD Datatrieve-11.

```
RUN $TKB
@DTRSTS.TKB
```

8. Copy the new Datatrieve-11 task image to the system account.

```
RUN $PIP.SAV
$DTR.TSK=DTR.TSK
```

DATATRIEVE-11 V1.1
for RSTS/E VØ6C
DTR

PROTECTION NOT CHECKED FOR PROCEDURE INVOCATION (SPR 21534)

PROBLEM:

Datatrieve V1.1 does not verify that a user has legitimate access to a dictionary procedure at invocation time. Thus a user can invoke, but not see, a dictionary procedure to which he has no legitimate access.

This patch causes Datatrieve to validate access to a procedure when it is invoked. IT DOES NOT, HOWEVER, ALLOW A PASSWORD TO BE GIVEN AT THE TIME A PROCEDURE IS INVOKED. The privilege to allow invocation of a procedure must be based on UIC alone. An attempt to supply a password in conjunction with a procedure invocation will result in a syntax error.

SOLUTION:

Install the patch by the following procedure.

PROCEDURE:

1. Login into the account from which Datatrieve-11 was originally installed. The files DTRSTS.TKB, DTRSTS.ODL, and RMSRST.ODL should remain from Datatrieve-11 installation in that account.

2. Build the following correction file: DTRQ02.MAC

```
        .TITLE  LX      PATCH TO MODULE LX
        .IDENT  /V01.11/
        .PSECT  LX
LX=.
.=LX+2214
        CALL    PAT1
        BCS     LX+2310
        .PSECT  PAT
PAT1:   CALL    DIOBTN
         BCS    10$
        CALL    PRGPW
         BCS    10$
        CALL    PRCOMP
         BCS    10$
        CALL    PRANY
10$:    RTS     PC
        .END
```

DATATRIEVE-11 V1.1
for RSTS/E VØ6C
DTR

3. Extract the original module from DTRLIB.

```
RUN $LBR
LX.OLD=[1,1]DTRLIB/EX:LX
```

4. Assemble the correction file.

```
RUN $MAC
DTRQ02=DTRQ02
```

5. Run the "PAT" utility to correct the object module.

```
RUN $PAT
LX=LX.OLD,DTRQ02/CS:23077
```

6. Re-insert module into library.

```
RUN $LBR
[1,1]DTRLIB/RP=LX
```

7. Re-TASK-BUILD Datatrieve-11.

```
RUN $TKB
@DTRSTS.TKB
```

8. Copy the new Datatrieve-11 task image to the system account.

```
RUN $PIP.SAV
$DTR.TSK=DTR.TSK
```

DATATRIEVE-11 V1.1
for RSTS/E VØ6C
DTR

GUIDE MODE ABORTS WITH SEVERE ERROR

PROBLEM:

Datatrieve V1.1 aborts with a severe error or stack overflow when in guide mode when accessing a record with a "large" number of fields. Exactly what is "large" depends on the specific operating system and installation parameters. The problem can be cured by either increasing the STACK parameter in the Datatrieve task build command file or (preferably) by installing this patch.

SOLUTION:

Install the patch by the following procedure.

PROCEDURE:

1. Login into the account from which Datatrieve-11 was originally installed. The files DTRSTS.TKB, DTRSTS.ODL, and RMSRST.ODL should remain from Datatrieve-11 installation in that account.

2. Build the following correction file: DTRQ03.MAC

```
        .TITLE  DD      DTRQ03 -- CORRECTION FOR MODULE DD
        .PSECT  DD
        .IDENT  /V01.11/
DD=.
.=DD+2110
        BR      DD+1772
        .END
```

3. Extract the original module from DTRLIB.

```
RUN $LBR
DD.OLD=[1,1]DTRLIB/EX:DD
```

4. Assemble the correction file.

```
RUN $MAC
DTRQ03=DTRQ03
```

5. Run the "PAT" utility to correct the object module.

```
RUN $PAT
DD=DD.OLD,DTRQ03/CS:4754
```

6. Re-insert module into library.

```
RUN $LBR
[1,1]DTRLIB/RP=DD
```

7. Re-TASK-BUILD Datatrieve-11.

```
RUN $TKB
@DTRSTS.TKB
```

8. Copy the new Datatrieve-11 task image to the system account.

```
RUN $PIP.SAV
$DTR.TSK=DTR.TSK
```

RSTS/E V6C
CUMULATIVE INDEX
MARCH 1979

This is a complete listing of all articles for RSTS/E V6C and layered products. Missing sequence numbers may pertain to problems unique to other versions of the same product or other major operating systems.

IMPORTANT!

The following numerical system has been grouped in logical order denoted by the first digit (X.X.X). The second digit (X.X.X.) refers to the subcomponent and the third digit (X.X.X) denotes the issue number or sequential order.

Retracted articles are indicated: RETRACTION.

Flags are currently being installed for all articles. The flags and definitions are as follows.

M = Mandatory patch. These are critical patches which each customer is required to install.

O = Optional patch. These articles are applicable only if the reported problems have occurred at the customer site or if they are unique to his operation.

R = Restriction. These problems are not patchable in released software. Restrictions are reviewed and corrected when possible as part of the normal release cycle.

N = Note. This information may be helpful to the user.

* = Articles appeared in RSTS/E Release Notes, December 1977 (AA-5246B-TC).

+ = Articles appeared in RSTS/E Software Dispatch Review, January 1978 (AA-5514B-TC).

** = Articles appeared in CTS-500 DIBOL-11 Release Notes June 1978 (AA-55048-TC)

Component	Sequence	Mon/Yr
	RSTS/E V06C-03	
INITIALIZATION		
INIT.SYS PROGRAM PATCHES		
MAIN MEMORY CACHE NOT PROPERLY DISABLED	1.1.1 M	Feb 78
DC11'S DON'T INTERRUPT	1.1.2 M	Mar 78
PDP-11/60 ERROR LOGGING INCOMPLETE	1.1.3 M	Apr 78
NOT ENOUGH ROOM IN COPY	1.1.4 M	Nov 78
PATTERN CHECKS FAIL ON DR DISKS	1.1.5 M	Nov 78
DUAL PORT DRIVES NOT HANDLED CORRECTLY	1.1.6 M	Feb 79
INIT.SYS PROGRAM NOTES		
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DIBOL-11/DECFORM V1

#Articles appeared in CTS-500 DIBOL Release Notes, July 1977 (DEC-11-LCDAA-A-D).

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BASIC-PLUS-2

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LARGE TERMINAL WIDTHS PRODUCE FATAL ERRORS	27.3.6 M*	Dec 77
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AN ATTEMPT TO USE A SUBSCRIPT OUT OF RANGE IN DEBUG WILL GIVE MEMORY MANAGEMENT ERRORS	27.3.8 M*	Dec 77
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ILLEGAL FILENAME MAY NOT GIVE ERROR	27.3.11 M*	Dec 77
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INTEGER EXPONENTIATE MAY GIVE OVERFLOW ERROR	27.3.19 O	Feb 78
USE OF MODE A% CLAUSE IN OPEN CHANGES VALUE OF A%	27.3.20 M	Feb 78
FILE STRING SCAN (SYS(-10)) REPORTS ERRORS INCORRECTLY	27.3.21 M	Feb 78
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INTEGER ARGUMENTS MAY GIVE MEMORY ERRORS	27.3.23 M	Feb 78
'E' FORMAT WITH SCALING INPUTTED ERRONEOUSLY	27.3.24 M	Feb 78
CHAIN DROPS PRIVILEGES	27.3.25 M	Feb 78
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SCALED ARITHMETIC LOSES ACCURACY	27.3.27 M	Mar 78
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SINGLE ALPHA CHARACTERS WRONGLY ACCEPTED AS NUMERIC	27.3.29 M	May 78
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NUM1$(SINGLE PRECISION) MAY GIVE STRANGE RESULTS	27.3.31 M	May 78
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XLATE FUNCTION DOES NOT WORK PROPERL`Y	27.3.33 M	Aug 78
RANDOMIZE DOES NOT WORK PROPERLY	27.3.34 M	Aug 78
THE THREAD MA1$ IS NOT IN THE RUN TIME SYSTEM	27.3.35 M	Aug 78
SIGN FUNCTION (SGN) NOT RETURNING CORRECT VALUES	27.3.36 M	Aug 78

Component	Sequence	Mon/Yr
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ERROR TRAPPING OUT OF STRING FUNCTION GIVES MEMORY MANAGEMENT VIOLATION	27.4.3 M*	Dec 77
DEVICE "TI:" NOT PROPERLY HANDLED	27.4.4 M*	Dec 77
CHANGING PROMPT FOR BP2COM WHEN DEFAULT RUN-TIME SYSTEM	27.4.5 O	Dec 77
CHAINING TO A BASIC-PLUS PROGRAM FROM BASIC-PLUS-2 MAY RESULT IN SCALE FACTOR INTERLOCK	27.4.6 M*	Dec 77
ILLEGAL FILENAME MAY NOT GIVE ERROR	27.4.7 M	Jan 78
BP2COM FAILS TO CHAIN TO INIT AT START-UP	27.4.8 O	Jan 78
STACK OVERFLOW ERRORS WHEN BP2COM IS DEFAULT RTS	27.4.9 M	Mar 78
CONTROL C OUT OF BP2COM GIVES ERRORS	27.4.11 M	Oct 78
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BASIC2 OBJECT LIBRARY PATCHES		
DEBUG MAY IGNORE BREAK IN USER FUNCTION	27.5.1 M*	Dec 77
AN ATTEMPT TO USE A SUBSCRIPT OUT OF RANGE IN DEBUG WILL GIVE MEMORY MANAGEMENT ERRORS	27.5.2 M*	Dec 77
MEMORY MANAGEMENT VIOLATION ON MATRIX INVERSION	27.5.3 M	Jan 78
KEYED GETS WITH STRING EXPRESSIONS GIVE ERRORS	27.5.4 M	Mar 78
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THE THREAD MA1$ IS NOT IN THE RUN TIME SYSTEM	27.5.6 M	Aug 78
UPDATE DOES NOT CORRECTLY SET RECORDSIZE	27.5.7 M	Oct 78
BP2COM OBJECT LIBRARY PATCHES		
POSSIBLE UNIBUS TIMEOUT FATAL ERRORS ON STRING EQUATES	27.6.1 M*	Dec 77
POSSIBLE UNIBUS TIMEOUT FATAL ERRORS ON PRINT-USINGS	27.6.2 M*	Dec 77
CLOSING A WRITE LOCKED OR HUNG DEVICE RESULTS IN A LOOP	27.6.3 M*	Dec 77
ERROR TRAPPING OUT OF STRING FUNCTION GIVES MEMORY MANAGEMENT VIOLATION	27.6.4 M*	Dec 77
LARGE TERMINAL WIDTHS PRODUCE FATAL ERRORS	27.6.5 M*	Dec 77
DEBUG MAY IGNORE BREAK IN USER FUNCTION	27.6.6 M	Jan 78
AN ATTEMPT TO USE A SUBSCRIPT OUT OF RANGE IN DEBUG WILL GIVE MEMORY MANAGEMENT ERRORS	27.6.7 M	Jan 78
UNQUOTED STRINGS OR "&" AT END OF DATA STATEMENTS CAUSE READ ERRORS	27.6.8 M	Jan 78
POSSIBLE BAD DATA IF VIRTUAL ARRAY READ CAUSES ERROR	27.6.9 M	Jan 78
PRINT USING IGNORES TRAILING ASTERISK	27.6.10 M	Jan 78
MEMORY MANAGEMENT VIOLATION ON MATRIX INVERSION	27.6.11 M	Jan 78
PRINT USING RETURNS ERROR INDICATOR FOR NEGATIVE NUMBERS	27.6.12 M	Jan 78
AN OPEN OF THE TERMINAL IGNORES ACTUAL WIDTH	27.6.13 M	Jan 78
NUM$ WITH SCALING CAUSES MEMORY ERRORS	27.6.14 M	Jan 78
VAL FUNCTION IGNORES SCALE FACTOR	27.6.15 M	Jan 78
RND DOES NOT RETURN TRULY RANDOM NUMBERS	27.6.16 M	Feb 78
INTEGER EXPONENTIATE MAY GIVE OVERFLOW ERROR	27.6.17 M	Feb 78
USE OF MODE A% CLAUSE IN OPEN CHANGES VALUE OF A%	27.6.18 M	Feb 78
FILE STRING SCAN (SYS(-10)) REPORTS ERRORS INCORRECTLY	27.6.19 M	Feb 78
RMS OPENS WITH SCALING MAY CAUSE ERRORS	27.6.20 M	Feb 78
INTEGER ARGUMENTS MAY GIVE MEMORY ERRORS	27.6.21 M	Feb 78
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'E' FORMAT WITH SCALING INPUTTED ERRONEOUSLY	27.6.23 M	Feb 78
CHAIN DROPS PRIVILEGES	27.6.24 M	Feb 78
ALLOWING 24 HOUR TIME OPTION	27.6.25 O	Mar 78
SCALED ARITHMETIC LOSES ACCURACY	27.6.26 M	Mar 78
CERTAIN UNTRAPPABLE ERRORS SHOULD NOT BE	27.6.27 M	Mar 78
KEYED GETS WITH STRING EXPRESSIONS GIVE ERRORS	27.6.28 M	Mar 78
SINGLE ALPHA CHARACTERS WRONGLY ACCEPTED AS NUMERIC	27.6.29 M	May 78
UNASSIGNED	27.6.30	XXX XX
NUM1$(SINGLE PRECISION) MAY GIVE STRANGE RESULTS	27.6.31 M	May 78
CHANNEL 15 NOT CLOSED ON ATTACH SYS CALL	27.6.32 M	May 78
XLATE FUNCTION DOES NOT WORK PROPERLY	27.6.33 M	Aug 78
RANDOMIZE DOES NOT WORK PROPERLY	27.6.34 M	Aug 78
THE THREAD MA1$ IS NOT IN THE RUN TIME SYSTEM	27.6.35 M	Sep 78
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SORT-11 V2

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RPG II V8.02

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Component	Sequence	Mon/Yr
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DIMENSIONAL ARRAYS	35.6.1 M	Aug 78
NETFIL		
CREATING UPX	35.7.1 M	Aug 78

DIBOL-11/DECFORM V4D

PACKAGE NOTES		
CTRL/C TRAPPING	36.1.1 N**	Jun 78
SYSTEM CONTROL PROGRAMS	36.1.2 N**	Jun 78
IMPROPER USE OF RUNJB	36.1.3 N**	Jun 78
DATA TYPE COMPATIBILITY	36.1.4 N**	
DECFORM DATA ENTRY FOR PROGRAMS	36.1.5 N**	Jun 78
ZONED ASCII ARITHMETIC FOR BP2COM V1.50	36.1.6 O	Dec 78
ZONED ASCII ARITHMETIC FOR BASIC2 V1.50	36.1.7 O	Dec 78
DOCUMENTATION		
INDIRECT COMMAND FILE SPECIFICATIONS	36.2.1 M	Jan 79
BUILD PROCEDURES		
DBUILD SUPERCESSION	36.3.1 N**	Jun 78
DICOMP SUPERCESSION	36.3.2 N**	Jun 78
DIBOLR		
RSTAT VALUES	36.5.1 N**	Jun 78
RMS CARRIAGE CONTROL ATTRIBUTE	36.5.2 N**	Jun 78
PROC NUMBER	36.5.3 N**	Jun 78
OPTIONAL PATCH TO EXPAND CALL/RETURN LIMIT (R6 STACK SPACE)	36.5.4 O**	Jun 78
MAXIMUM LENGTH ARGUMENTS	36.5.5 M	Feb 79
READ AFTER WRITE ON RELATIVE FILES	36.5.6 M	Mar 79
OUT OF MEMORY ERROR	36.5.7 M	Mar 79
DECFORM		
FOCOMR.MLB DECFORM LIBRARY	36.6.1 N**	Jun 78
NO RMS SEQUENTIAL FILE UPDATES	36.6.2 N**	Jun 78
FILE VALIDATION RECORD SIZE ERROR	36.6.3 N**	Jun 78
DATA ENTRY FOR OTHER PROGRAMS GIVES BAD MESSAGE	36.6.4 M	Mar 79
ERRORS IN THE GTFORM DATA ENTRY SUBROUTINE	36.6.5 O	Mar 79
RMS NOTES		
RMS VERSION IS 1.5	36.7.1 N**	Jun 78
OTHER RTSs AND ODLs	36.7.2 N**	Jun 78
NO KEY SWITCHING	36.7.3 N**	Jun 78
CTS-500 DIBOL-11 USER'S GUIDE		
CLARIFICATION OF SAMPLE ODL FILE	36.9.1 M	Dec 78

DECAL V2

QUIZ		
QUIZ01 DOES NOT INTERPRET AUTHOR VARIABLES CORRECTLY	37.2.1 M	Sep 78
CREATE		
END-OF-BLOCK INDICATOR	37.3.1 M	Aug 78
CREATE AND LEDIT1	37.3.2 M	Sep 78
SORT1		
SORT1 GENERATES A FATAL SORT ERROR	37.4.1 M	Sep 78

BASIC-PLUS-2 V1.5

BASIC2 COMPILER PATCHES		
SOME MIXED MODE ASSIGNMENT STATEMENTS GENERATE NO ERRORS	38.2.1 M	Nov 78
THE COMPILER EXPANSION OF A SYSTEM WIDE LOGICAL DEVICE NAME IS INCORRECT	38.2.2 M	Nov 78
OPTIMIZATION OF CONSTANTS CAN CAUSE ERRORS	38.2.4 M	Nov 78

Component	Sequence	Mon/Yr
BASIC2 RUN-TIME SYSTEM PATCHES		
NAME AS STATEMENT DOES NOT WORK PROPERLY, AND MAGTAPE (BACKSPACE) FUNCTION DOES NOT WORK PROPERLY	38.3.1 M	Nov 78
UNLOCK STATEMENT DOES NOT WORK PROPERLY	38.3.2 M	Oct 78
DEBUG LET STATEMENTS DO NOT WORK PROPERLY	38.3.3 M	Oct 78
UNASSIGNED	38.3.4	XXX XX
A NEGATIVE INDEX IN AN ON GOTO STATEMENT CAN CAUSE A PROGRAM CRASH	38.3.5 M	Nov 78
SGN FUNCTION DOES NOT WORK PROPERLY UNDER DOUBLE PRECISION	38.3.6 M	Nov 78
A NULL STRING PASSED TO A SUBPROGRAM WILL NOT BE UPDATABLE	38.3.7 M	Nov 78
MODE 8 PROCESSING DOES NOT WORK PROPERLY	38.3.8 M	Nov 78
NAME AS STATEMENT DOES NOT WORK PROPERLY, AND MAGTAPE (BACKSPACE) FUNCTION DOES NOT WORK PROPERLY	38.3.9 M	Nov 78
BP2COM RUN-TIME SYSTEM PATCHES		
SYSTEM SECURITY EXPOSURE WITH BASIC-PLUS-2 KEYBOARD MONITOR	38.4.1 M	Dec 78
A NEGATIVE INDEX IN AN ON GOTO STATEMENT CAN CAUSE A PROGRAM CRASH	38.4.2 M	Nov 78
A NULL STRING PASSED TO A SUBPROGRAM WILL NOT BE UPDATABLE	38.4.3 M	Nov 78
BASIC2 OBJECT LIBRARY PATCHES		
DEBUG LET STATEMENTS DO NOT WORK PROPERLY	38.5.1 M	Oct 78
BP2COM OBJECT LIBRARY PATCHES		
NAME AS STATEMENT DOES NOT WORK PROPERLY, AND MAGTAPE (BACKSPACE) FUNCTION DOES NOT WORK PROPERLY	38.6.1 M	Oct 78
UNLOCK STATEMENT DOES NOT WORK PROPERLY	38.6.2 M	Oct 78
DEBUG LET STATEMENTS DO NOT WORK PROPERLY	38.6.3 M	Oct 78
UNASSIGNED	38.6.4	XXX XX
A NEGATIVE INDEX IN AN ON GOTO STATEMENT CAN CAUSE A PROGRAM CRASH	38.6.5 M	Nov 78
SGN FUNCTION DOES NOT WORK PROPERLY UNDER DOUBLE PRECISION	38.6.6 M	Nov 78
A NULL STRING PASSED TO A SUBPROGRAM WILL NOT BE UPDATABLE	38.6.7 M	Nov 78
MODE 8 PROCESSING DOES NOT WORK PROPERLY	38.6.8 M	Nov 78
BASRMS OBJECT LIBRARY PATCHES		
WRITING PAST PHYSICAL END OF MAGTAPE IS NOW TRAPPABLE	38.7.1 M	Oct 78
WRITING PAST PHYSICAL END OF MAGTAPE IS NOW TRAPPABLE	38.7.2 M	Nov 78

DIBOL-11/DECFORM V4C

PACKAGE NOTES		
CTRL/C TRAPPING	39.1.1 N**	Jun 78
SYSTEM CONTROL PROGRAMS	39.1.2 N**	Jun 78
IMPROPER USE OF RUNJB	39.1.3 N**	Jun 78
DATA TYPE COMPATIBILITY	39.1.4 N**	Jun 78
DECFORM DATA ENTRY FOR PROGRAMS	39.1.5 N**	Jun 78
ZONED ASCII ARITHMETIC FOR BP2COM V1.50	39.1.6 O	Dec 78
ZONED ASCII ARITHMETIC FOR BASIC2 V1.50	39.1.7 O	Dec 78
CTSPIP		
INDIRECT COMMAND FILE SPECIFICATIONS	39.2.1 M	Jan 79

COBOL V3.1

BUILD PROCEDURES		
DBUILD SUPERCESSION	39.3.1 N**	Jun 78
DICOMP SUPERCESSION	39.3.2 N**	JUN 78
DIBOL		
OPTIONAL PATCH TO EXPAND CALL/RETURN LIMIT (R6 STACK SPACE)	39.5.1 O**	Jun 78
DECFORM		
FOCOMP.MLB DECFORM LIBRARY	39.6.1 N**	Jun 78
ERRORS IN THE GTFORM DATA ENTRY SUBROUTINE	39.6.2 O	Mar 79

Component	Sequence	Mon/Yr
COBOL-11 V3.1		
COMPILER		
INVALID ERROR MESSAGE IS GENERATED BY THE COMPILER	40.2.1 N	Dec 78
MULTIPLE OCCURS CLAUSES	40.2.2 M	Dec 78
USER'S GUIDE		
KBREAD SUBROUTINE RETURNS AN ERROR NO. 31	40.7.1 N	Dec 78
FORTRAN IV/RSTS/E V2.1		
PACKAGE NOTES		
FORTRAN IV V2.1 MAINTENANCE RELEASE	41.1.1 N	Dec 78
COMPILER		
PATCH 1	41.2.1 M	Feb 79
PATCH 2	41.2.2 M	Feb 79
PATCH 3	41.2.3 M	Feb 79
OTS		
SIMRT PROBLEMS - PATCH 5	41.3.1 M	Feb 79
DATATRIEVE-11 V1.1		
MINUS DOES NOT WORK	42.2.1 R	Mar 79
SORT MALFUNCTION FOR COMP-1, COMP-2, AND COMP-6 FIELDS	42.2.2 M	Mar 79
PROTECTION NOT CHECKED FOR PROCEDURE INVOCATION	42.2.3 M	Mar 79
GUIDE MODE ABORTS WITH SEVERE ERROR	42.2.4 M	Mar 79
RPG-11 V7.06		
RPG II V7.06 CAN NOT BE INSTALLED ON RSTS/E V06C-03	01 N*	Dec 77

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Software Product Description

PRODUCT NAME: DECnet Phase II Products, Version 1.0 **SPD 10.78.3**

DESCRIPTION:

DECnet Phase II is the collective name for the set of software products that extend various DIGITAL operating systems by enabling the user to interconnect these systems with each other to form computer networks. The DECnet Phase II products include DECnet-11M Version 2.0, DECnet-11S Version 2.0, DECnet-IAS Version 2.0, DECnet/E Version 1.0, DECnet-RT Version 1.0, DECnet-VAX Version 1.0, and DECnet-20 Version 1.0. The DECnet user can configure a variety of networks, to satisfy a variety of applications, by choosing the appropriate CPUs, line interface (and speeds), and operating system software.

In order to satisfy these widely varying applications, DECnet allows the user to build networks from a range of systems and communications components. DECnet allows users to interconnect systems using serial asynchronous, serial synchronous, and parallel facilities. When configuring DECnet systems, both ends of any given link must use the same type of communications discipline (e.g., synchronous, asynchronous, or parallel) running at the same line speed.

DIGITAL Network Architecture:

DECnet includes a set of network protocols, each of which is designed to fulfill specific functions within the network. Collectively, these protocols are known as the DIGITAL Network Architecture, or DNA. The major protocols, and their functions, are:

DIGITAL Data Communications Message Protocol (DDCMP) — DDCMP handles the physical link traffic control and physical link error recovery within DECnet. DDCMP operates over both full- and half-duplex facilities, using serial synchronous or serial asynchronous facilities in a point-to-point mode. DDCMP has the following important characteristics:

- Operates over a wide variety of hardware types
- Makes efficient use of full-duplex channel capacity
- Allows transmission of all data types (including binary) with low overhead
- Allows standard (character-oriented) communications hardware to be used
- Uses CRC-16 for error detection, with recovery by retransmission
- Effective on earth/satellite links (or other links) with long signal propagation delays

A full specification for DDCMP Version 4.0 is available on request. DIGITAL does not regard DDCMP as a proprietary protocol, and allows others to implement and use the protocol, providing an acknowledgment of the source is made in any public documentation.

Network Services Protocol (NSP) — NSP handles network management functions within DECnet. This includes sending messages between two nodes and routing messages within any given node. NSP makes it possible for two programs on different machines to establish a logical communications channel (or logical link) between the programs, and to exchange data using this logical link. These programs need not be aware of either the nature of the physical link (full/half duplex, parallel or serial) or the nature of the protocols supporting the physical link. NSP has the following important characteristics:

- Dynamic creation of logical links between tasks
- Exchange of data between tasks on a solicited basis
- Exchange of data between tasks on a non-solicited (e.g., interrupt) basis
- Ability to connect nodes dynamically within the network once NSP initialization occurs over a previously established physical link

A full specification for the Network Services Protocol Version 3.0 is available on request. NSP is not a proprietary protocol.

Data Access Protocol (DAP) — The Data Access Protocol enables programs on one node of the network to use the I/O services available on other network nodes. Some DECnet products provide facilities for translating operating system's unique I/O calls into the DAP standard, and vice versa. Thus, DAP enables data requests to be processed in a meaningful way by many (possibly heterogeneous) operating systems. DAP's facilities include:

- Remote file access, including OPEN, READ, WRITE, CLOSE, and DELETE for sequential and random access files, and command files

It should be noted that each DAP function requires support at both ends of the link. At the local node, where the user program initiates a data request, the DAP support must package the request for transmission through the network. At the remote node (where the device or file resides), the DAP support must cause the appropriate actions to be performed. Not all systems support both local and remote portions of

each DAP operation.

A full specification for the Data Access Protocol Version 4.1 is available on request. DAP is not a proprietary protocol.

DECnet Functions:

DIGITAL Network Architecture, implemented across a wide range of operating systems and hardware configurations, enables users to build a variety of networks. While such networks have a common attribute, individual systems in the network may have certain system-specific attributes. The common attribute is:

- Task-to-task communication: Programs or tasks on one system can create logical links and exchange data with programs or tasks on other systems in a real-time fashion.

Additionally, many DECnet systems support other features which are useful in a network environment. These include:

- Inter-system File Transfer: This facility allows an entire data file to be moved between systems, at either program or operator request. The common file type supported across systems that provide this function is sequential ASCII.
- Batch/Command File Submission: Local users can submit batch or command files to remote systems for execution.
- Batch/Command File Execution: Remote users can cause a batch or command file which resides at a remote node to be submitted for execution at the local node.
- Remote File Access: Tasks or programs can access sequential files on a record-by-record basis from files located on remote nodes.
- Down-line System Loading: Initial memory images for DECnet-11S systems in the network can be stored on the local system, and loaded on request into other systems in the network. Remote systems usually require the presence of a network bootstrap loader, implemented in read-only memory.
- Down-line Task Loading: Programs to be executed on DECnet-11S systems in the network can be stored on the local system, and loaded on request into other systems, under the joint control of the operating systems at both ends of the physical link. This and the preceding feature simplify the operation of network systems which do not have mass storage devices.

Table I provides the information for determining if the preceding functions are available on a particular DECnet system. Note that the above descriptions define the minimum capabilities provided by a given function. Additional capabilities, above those described as the minimum for a function, may be available between two of the same or different DECnet systems.

Configuring DECnet Networks:

DECnet provides a basic level of interconnection between specific products. However, each DECnet system has its own level of functions. The user can recognize specific constraints when configuring a network of heterogeneous DECnet systems. Table II lists the communication interfaces supported by each DECnet Phase II product for a particular class of line characteristics (e.g., 9.6 kilobits/second, synchronous). Each column lists the connections that are permissible for those line characteristics in cross-product network configurations. Individual product SPDs must be consulted to determine whether any particular configuration violates the maximum number of communications interfaces and line speeds for an individual product.

TRAINING CREDITS:

No training credits are included with a DECnet software license. Training courses on DECnet software are scheduled at regular intervals in DIGITAL's Training Centers. Arrangements should be made directly with DIGITAL's Educational Services Department.

SUPPORT CATEGORY:

Category A Software Support, as described in the Software Support Categories Addendum to this SPD, will be provided with DECnet Phase II product options that include support services.

The installation of DECnet software under Category A Support Services in any host system will convert that system to a node with the potential of being connected to a DECnet network. Category A installation does not include demonstration of network connection.

The customer may purchase DECnet Phase II product license options that do not include support services. The category of support applicable to such software is Category C. When a DECnet product option that does not include support services is connected to a DECnet network, the category of support applicable to all DECnet products in that network is Category C.

INSTALLATION SERVICE:

The installation of the software under Category A Software Support shall consist of:

1. Verifying that the software kit contains all software modules and manuals offered.
2. Generating the DECnet software.
3. Demonstrating the use of the majority of operator commands and system utilities.
4. Running a sample DIGITAL-supplied program.
5. Introducing the customer to the sources of software information and services.

Before installation of the software, the customer must:

1. Install or have installed all hardware, including terminals, to be used on the system.
2. Make available to DIGITAL personnel all hardware, including terminals, to be used during installation for a reasonable period of time each day, as mutually agreed upon by DIGITAL and the customer, until installation is complete.

Delays caused by any failure to meet these responsibilities will be charged at the then prevailing rate for time and materials.

PREREQUISITE SUPPORT:

A Network Profile and DECnet Support Plan covering all intended network nodes and their support must be prepared jointly by the customer and DIGITAL.

ORDERING INFORMATION:

All binary licensed software, including any subsequent updates, is furnished under the licensing provisions of DIGITAL's Standard Terms and Conditions of Sale, which provide in part that the software and any part thereof may be used on only the single CPU on which the software is first installed, and may be copied, in whole or in part (with the proper inclusion of the DIGITAL copyright notice and any DIGITAL proprietary notices on the software) only for use on such CPU. All source licensed software is furnished only under the terms and conditions of a separate Software Program Sources License Agreement between Purchaser and DIGITAL.

When multiple systems are connected in a single network, each individual system must be licensed separately with regard to both operating system and DECnet software.

ADDITIONAL SERVICES:

Software Consulting Services are offered on a time and materials basis to meet specific customer needs. Two levels of consulting services are available:

Level I Services

QJ680 -S— DECnet Level I Services (media: Z)

Level I services provide for the integration of DECnet nodes that carry Category A support into an interconnected network, with verification of network integrity and demonstration of DECnet functions. Level I services use DIGITAL sample procedures only.

Before installation of the network, the customer must:

1. Obtain, install, and demonstrate operational to DIGITAL's satisfaction any modems and other equipment and facilities necessary to interface DIGITAL's communications line interfaces and terminals.
2. Make available to DIGITAL's personnel all hardware, including communications facilities and terminals, to be used during installation for a reasonable period of time each day, as mutually agreed upon by DIGITAL and the customer.

Delays caused by any failure to meet these responsibilities will be charged at the then prevailing rate for time and materials.

Level II Services

QS912 -S— Daily Software Consulting Services (media: Z)

QS926 -S— Weekly Software Consulting Services (media: Z)

QS922 -S— 6-Month Resident Software Consulting Services (media: Z)

QS924 -S— 12-Month Resident Software Consulting Services (media: Z)

Level II services provide for additional support as mutually agreed upon by DIGITAL and the customer in the DECnet Customer Support Plan.

Table I

	DECnet-11M Version 2.0	DECnet-11S Version 2.0	DECnet-IAS Version 2.0	DECnet/E Version 1.0	DECnet-RT Version 1.0	DECnet-VAX Version 1.0	DECnet-20 Version 1.0
Task-to-Task	YES	YES	YES	YES	YES	YES	YES
Intersystem File Transfer	YES	NO	YES	YES	YES	YES	NO
Command/Batch File Submission	YES[1]	NO	YES[1]	YES	YES	YES[1]	NO
Command/Batch File Execution	YES	NO	YES	YES	NO	YES	NO
Remote File Access	YES	YES[2]	YES	NO	YES	YES	NO
Down-Line System Loading	YES	NO	YES	NO	NO	YES	NO
Down-Line Task Loading	YES	NO	YES	NO	NO	NO	NO

[1]Cannot submit files to DECnet/E systems. Can tell DECnet/E to execute batch files already at the DECnet node.

[2]Offers local users network access to remote file systems. Does not allow users on remote systems to access local files.

Table II

	EIA Sync <9.6K bits/sec	EIA Sync <19.2K bits/sec	EIA Async <9.6K bits/sec	20mA Async <9.6 bits/sec	Local Sync 56K bits/sec	Local Sync 1M bits/sec	Local Parallel	Remote Sync 56Kb
DECnet-11M Version 2.0	DP11 DU11-DA DQ11-DA DV11	DUP11-DA DMC11-AR DMC11-DA	DL11-E DZ11-A DZ11-B	DL11-C DL11-WA DZ11-C DZ11-D	DMC11-AL DMC11-MD	DMC11-AL DMC11-MA	DA11	
DECnet-11S Version 2.0	DP11 DU11-DA DQ11-DA DV11 DUV11-DA	DUP11-DA DMC11-AR DMC11-DA	DL11-E DZ11-A DZ11-B	DL11-C DL11-WA DZ11-C DZ11-D	DMC11-AL DMC11-MD	DMC11-AL DMC11-MA	DA11	
DECnet-IAS Version 2.0	DP11 DU11-DA DUP11-DA DV11 DQ11-DA	DMC11-AR DMC11-DA	DL11-E DZ11-A DZ11-B	DL11-C DL11-WA DZ11-C DZ11-D	DMC11-AL DMC11-MD	DMC11-AL DMC11-MA	DA11	
DECnet-RT Version 1.0	DU11-DA DUP11-DA DUV11-DA	DMC11-AR DMC11-DA	DL11-E	DL11-C DL11-WA	DMC11-AL DMC11-MD	DMC11-AL DMC11-MA		
DECnet/E Version 1.0		DMC11-DA DMC11-AR			DMC11-AL DMC11-MD	DMC11-AL DMC11-MA		
DECnet-VAX Version 1.0		DMC11-AR DMC11-DA			DMC11-AL DMC11-MD	DMC11-AL DMC11-MA		
DECnet-20 Version 1.0 2040/50/60	DN20-BA (DUP11-DA)							DN21-BA (DMC11-AR DMC11-FA
2020		DN20 BA/BB (DUP11-DA)						

ADDENDUM

SOFTWARE SUPPORT CATEGORIES

Each software product (hereinafter 'SOFTWARE') with a designated Support Category A or B in the applicable Software Product Description (SPD) existing at the time of order will be the current release at the time of delivery and will conform to the SPD. DIGITAL's sole obligation shall be to correct defects (nonconformance of the SOFTWARE to the SPD) as described below. Any SOFTWARE with a designated Support Category C will be furnished on an 'as is' basis.

For SOFTWARE with a designated Support Category A or B, DIGITAL will provide the services set forth below without additional charge.

CATEGORY A

1. Upon notification by customer to the nearest DIGITAL office that the computer system, including all required prerequisite hardware and software, is ready for the installation of the SOFTWARE, DIGITAL will install such SOFTWARE in any location within the contiguous forty-eight (48) United States, the District of Columbia, or a country in which DIGITAL or a subsidiary of DIGITAL has a software service facility. The notification must be received by DIGITAL and the system must be ready for installation within thirty (30) days after the delivery of the SOFTWARE to customer or DIGITAL will have no obligation to install. Installation will consist of: (1) verification that all components of the SOFTWARE have been received by customer, (2) loading the SOFTWARE, and (3) executing a DIGITAL sample procedure.
2. During the ninety (90) day period after installation, if the customer encounters a problem with the current unaltered release of the SOFTWARE which DIGITAL determines to be a defect in the SOFTWARE, DIGITAL will provide the following remedial service (on site where necessary): (1) if the SOFTWARE is inoperable, apply a temporary correction (TC) or make a reasonable attempt to develop an emergency by-pass, and (2) assist the customer to prepare a Software Performance Report (SPR) and submit it to DIGITAL.
3. During the one (1) year period following installation, if the customer encounters a problem with the SOFTWARE which his diagnosis indicates is caused by a SOFTWARE defect, the customer may submit an SPR to DIGITAL. DIGITAL will respond to problems reported in SPRs which are caused by defects in the current unaltered release of the SOFTWARE via the Maintenance Periodical for the SOFTWARE, which reports SPRs received, code corrections, temporary corrections, generally useful emergency by-passes and/or notice of the availability of corrected code. Software Updates, if any, released by DIGITAL during the one (1) year period, will be provided to the customer on DIGITAL's standard distribution media as specified in the applicable SPD. The customer will be charged only for the media on which such updates are provided, unless otherwise stated in the applicable SPD, at DIGITAL's then current media prices.

CATEGORY B

During the one (1) year period following delivery, the services provided to the customer will be the same as set forth in 3 above.

CATEGORY C

SOFTWARE is provided on an 'as is' basis. Any software services, if available, will be provided at the then current charges.

DIGITAL shall have the right to make additional charges for any additional effort required to provide services resulting from customer use of other than current unaltered release of the SOFTWARE operated in accordance with the SPD.

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Software Product Description

PRODUCT NAME: RSTS/E (CTS-500)/3271 Protocol Emulator, Version 1.0 **SPD 10.83.0**

DESCRIPTION:

The RSTS/3271 Protocol Emulator permits user jobs running under RSTS/E or CTS-500 operating systems to communicate interactively with user tasks running on an IBM System/370 or IBM Series/30 System. The RSTS/E or CTS-500 user program can be written in either BASIC-PLUS, BASIC-PLUS-2, COBOL, or DIBOL. The IBM application program must run under either the IMS/VS or CICS/VS DB/DC systems. The package makes it possible for RSTS/E users to have on-line access to IBM data bases, for the purposes of information entry, retrieval, update, or file transfer.

The RSTS/3271 Protocol Emulator is a general purpose tool which:

- Links RSTS jobs to IBM tasks interactively
- Talks to IMS/VS
- Talks to CICS/VS
- Supports the IBM 3271 interactive BSC protocol

The RSTS/3271 Protocol Emulator:

- Does not do IBM 3277 CRT emulation
- Does not respond to the SENSE, COPY, and READ BUFFER commands
- Does not support SDLC protocol

Line Discipline — The communications discipline used by the RSTS/3271 Protocol Emulator is the 3271 subset of IBM's BSC (Binary Synchronous Communications) protocol using EBCDIC code. Specifically, this subset of BSC supports operation of full- and half-duplex leased lines in either point-to-point or multipoint configurations at transmission speeds up to 9,600 bits per second. The Protocol Emulator does not support switched facilities, contention line control, or transparent BSC capability, but it can share a multidrop line with control units functioning in transparent or non-transparent mode.

User Job Interface — Using a simplified user interface, a RSTS/E user program interfaces via GETs and PUTs to the Protocol Emulator. The user job sends and receives ASCII text; the Protocol Emulator adds and strips 3277 CRT control characters as required. The BASIC-PLUS and BASIC-PLUS-2 user can optionally take responsibility for adding and interpreting 3271 buffer attribute and cursor control orders using a special OPEN mode.

System Overhead — The RSTS/3271 Protocol Emulator uses the KMC11 microprocessor to lower significantly the CPU overhead normally associated with BSC communications. The KMC11 handles all modem and line control, BSC protocol, and does ASCII/EBCDIC code conversion in both directions.

MINIMUM HARDWARE REQUIRED:

A minimum RSTS/E configuration with:

- An additional 2K words (4K bytes) of memory
- A DUP11 synchronous interface
- A KMC11-A communication controller
- Bell 201, 208 or 209 Data Sets or common carrier equivalent. Operation with other modems or with modem eliminators is not precluded, but warranted support does not apply in these cases.
- A master host IBM System/370 or IBM Series/30 configuration which must include either a 2701 Data Adaptor Unit, a 2703 Transmission Control Unit, a 3704 or 3705 Transmission Controller running with Emulator Program (EP) or Partitioned Emulator Program (PEP) software, or a System/370 Integrated Communications Adaptor (ICA). Operation with non-IBM supplied devices is not precluded, but warranted support does not apply in these cases.

OPTIONAL HARDWARE:

- A KMC11 and DUP11 for each additional line after one. A system limit of eight (8) KMC11/DUP11 pairs is supported
- 1K words additional memory for each additional synchronous line after one

PREREQUISITE SOFTWARE:

One of the following DIGITAL operating systems:

- RSTS/E operating system, Version 6C or later
- CTS-500 operating system, Version 4.0 or later

And a master host IBM System/370 or IBM Series/30 system running a current release of one of the following:

- DOS/VS
- OS/VS1
- OS/VS2
- OS/MVS

and either CICS/VS or IMS/VS DB/DC systems, using BTAM, TCAM, or VTAM access methods.

Operation with other IBM operating systems and task interfaces is not precluded, but warranted support does not apply in these cases.

OPTIONAL SOFTWARE:

- PDP-11 BASIC-PLUS-2, Version 1.0 or later
- PDP-11 COBOL, Version 3.0 or later

TRAINING CREDITS:

None

SUPPORT CATEGORY:

A — Software Support will be provided as stated in the Software Support Categories Addendum to this SPD.

PREREQUISITE SUPPORT

A Customer Support Plan with its accompanying System and Site Description must be prepared jointly by DIGITAL and the customer. This plan includes descriptions of the DIGITAL and IBM nodes, the physical communication link(s), the application, the expected data traffic, the required level of support and recommendations for additional support services.

CUSTOMER RESPONSIBILITY

To install and use the RSTS/3271 Protocol Emulator effectively, the user and his software system support organization must be prepared to work at the system programming level as well as at the more traditional application program levels in both the RSTS/E and IBM systems.

Successful use of the RSTS/3271 Protocol Emulator interactive link requires that:

1. The customer design his applications with full knowledge of what has to be done at the systems programming level in CICS or IMS to accomplish the desired communications.
2. The customer be fully conversant with RSTS/E to be able to write efficient application programs for the interactive CPU-to-CPU environment.
3. The customer know how to SYSGEN both the IBM and RSTS/E systems to achieve the desired CPU-to-CPU logical communication links.

In addition, before installation of the software, the customer must:

4. Obtain, install, and demonstrate operational to DIGITAL's satisfaction the modems and other equipment and facilities necessary to interface to DIGITAL's communication line interfaces and terminals.
5. Install or have installed all hardware, including terminals, to be used on the system.
6. Generate any and all IBM systems that will be communicating with the 3271 Protocol Emulator to DIGITAL's satisfaction.
7. Make available to DIGITAL personnel all hardware, including communications facilities and terminals, to be used during installation and acceptance testing for a reasonable period of time each day, as mutually agreed upon by DIGITAL and customer, until acceptance criteria are satisfied.
8. Provide access privileges and machine time on any and all IBM systems on which the installation is to be performed.

Delays caused by any failure to meet these responsibilities will be charged at the then prevailing rate for time and materials.

UPDATE POLICY:

Software Updates, if any, released by DIGITAL during the one (1) year period following installation, will be provided to the customer for a media charge (includes no installation). After the first year, updates, if any, will be made available according to then prevailing DIGITAL policies.

ORDERING INFORMATION:

All binary licensed software, including any subsequent updates, is furnished under the licensing provisions of DIGITAL's Standard Terms and Conditions of Sale, which provide in part that the software and any part thereof may be used on only the single CPU on which the software is first installed, and may be copied, in whole or in part (with the proper inclusion of the DIGITAL copyright notice and any DIGITAL proprietary notices on the software) only for use on such CPU. All source licensed software is furnished only under the terms and conditions of a separate Software Program Sources License Agreement between Purchaser and DIGITAL.

Options with no support services are only available after the purchase of one supported license. When a software license is ordered without support services, the category of support applicable to such software is Category C.

A single-use license only option is a license to copy the software previously obtained under license, and use such software in accordance with DIGITAL's Standard Terms and Conditions of Sale. The category of support applicable to such copied software is Category C.

The following key (D, E, Q, T, V, Z) represents the distribution media for the product and must be specified at the end of the order number, e.g., QRD05-AE = binaries on RK05 disk.

D = 9-track Magnetic Tape
E = RK05 Disk Cartridge
Q = RL01 Disk Cartridge
T = RK06 Disk Cartridge
V = RK07 Disk Cartridge
Z = No hardware dependency

QRD05 -A— Single-use license, binaries, documentation, support services (media: D, E, Q, T, V)

QRD05 -C— Single-use license, binaries, documentation, no support services (media: D, E, Q, T, V)

QRD05 -D— Single-use license only, no binaries, no documentation, no support services (media: Z)

ADDITIONAL SERVICES:

None

ADDENDUM
SOFTWARE SUPPORT CATEGORIES

Each software product (hereinafter 'SOFTWARE') with a designated Support Category A or B in the applicable Software Product Description (SPD) existing at the time of order will be the current release at the time of delivery and will conform to the SPD. DIGITAL's sole obligation shall be to correct defects (nonconformance of the SOFTWARE to the SPD) as described below. Any SOFTWARE with a designated Support Category C will be furnished on an 'as is' basis.

For SOFTWARE with a designated Support Category A or B, DIGITAL will provide the services set forth below without additional charge.

CATEGORY A

1. Upon notification by customer to the nearest DIGITAL office that the computer system, including all required prerequisite hardware and software, is ready for the installation of the SOFTWARE, DIGITAL will install such SOFTWARE in any location within the contiguous forty-eight (48) United States, the District of Columbia, or a country in which DIGITAL or a subsidiary of DIGITAL has a software service facility. The notification must be received by DIGITAL and the system must be ready for installation within thirty (30) days after the delivery of the SOFTWARE to customer or DIGITAL will have no obligation to install. Installation will consist of: (1) verification that all components of the SOFTWARE have been received by customer, (2) loading the SOFTWARE, and (3) executing a DIGITAL sample procedure.
2. During the ninety (90) day period after installation, if the customer encounters a problem with the current unaltered release of the SOFTWARE which DIGITAL determines to be a defect in the SOFTWARE, DIGITAL will provide the following remedial service (on site where necessary): (1) if the SOFTWARE is inoperable, apply a temporary correction (TC) or make a reasonable attempt to develop an emergency by-pass, and (2) assist the customer to prepare a Software Performance Report (SPR) and submit it to DIGITAL.
3. During the one (1) year period following installation, if the customer encounters a problem with the SOFTWARE which his diagnosis indicates is caused by a SOFTWARE defect, the customer may submit an SPR to DIGITAL. DIGITAL will respond to problems reported in SPRs which are caused by defects in the current unaltered release of the SOFTWARE via the Maintenance Periodical for the SOFTWARE, which reports SPRs received, code corrections, temporary corrections, generally useful emergency by-passes and/or notice of the availability of corrected code. Software Updates, if any, released by DIGITAL during the one (1) year period, will be provided to the customer on DIGITAL's standard distribution media as specified in the applicable SPD. The customer will be charged only for the media on which such updates are provided, unless otherwise stated in the applicable SPD, at DIGITAL's then current media prices.

CATEGORY B

During the one (1) year period following delivery, the services provided to the customer will be the same as set forth in 3 above.

CATEGORY C

SOFTWARE is provided on an 'as is' basis. Any software services, if available, will be provided at the then current charges.

DIGITAL shall have the right to make additional charges for any additional effort required to provide services resulting from customer use of other than current unaltered release of the SOFTWARE operated in accordance with the SPD.

The Digital Equipment Computer Users Society

DECUS

DECUS, the Digital Equipment Computer Users Society, was established in March of 1961 to advance the effective use of DIGITAL computers. It is a voluntary, not-for-profit users group, supported in part by Digital Equipment Corporation.

OBJECTIVES

The objectives of the Society are to advance the effective utilization of computers, computer peripheral equipment, and software manufactured and marketed by Digital Equipment Corporation, by promoting the interchange of information concerning their uses; advance the art of computation through mutual education and exchange of ideas and information; establish standards and provide channels to facilitate the exchange of computer programs among DECUS members; provide feedback to the computer industry on equipment and software needs; and to reduce the duplication of development efforts.

ACTIVITIES

1. SYMPOSIA

Symposia are held throughout the year in each of the DECUS Chapters. These meetings provide a forum for users of DIGITAL computers to meet with other users and with DIGITAL management, engineers, and Software Services and Field Service representatives. They are an opportunity for users to participate in DIGITAL Product Workshops and Product Planning feedback sessions. The technical papers and presentations from each symposium are published as DECUS Proceedings after each meeting and provide a permanent record of the meetings activities.

2. SPECIAL USER GROUPS

DECUS encourages subgrouping of users with common interests and/or geographical proximity.

Special Interest Groups (SIGs) promote the interchange of specialized information and have no geographical limitations. Specializations may be for application areas, subject areas (such as languages), or specific operating systems. A group of users must petition the Chapter Executive Board for recognition as a Special Interest Group. The group must have a chairman, and its organization must meet the guidlines of the Chapter Executive Board.

Examples of active SIGs are users of RSX-11, RSTS, RT-11 users, business system users, etc. For additional information, contact your Chapter Executive Secretary.

One of the most successful subgroupings are Local Users Groups (LUGs). There are numerous active LUGs in Australia, Canada, Europe, and the U.S. Local User Groups are basically geographic in nature; however, they may be geographic and specific as well.

The largest Special User Group is composed of users of the DECsystem-10 and DECsystem-20.

3. STANDARDS

DECUS promotes user activity in reviewing DIGITAL standards. Users are given the opportunity to comment on DIGITAL standards prior to their finalization.

4. PROGRAM LIBRARY

One of the major activities of the users group is the DECUS Program Library. The Library contains programs written and submitted by users and is maintained and operated separate from the Digital Software Distribution Center. A wide range of software is available, including languages, editors, numerical functions, utilities, display routines, and various other types of application software.

DECUS (continued)

Library catalogs, updated periodically, contain descriptive abstracts and ordering information.

Information and forms for submitting programs to the Library may be obtained from local DECUS offices.

Programs are available to all members on a request basis. Orders for programs are made on DECUS Library Order Forms and directed to the local DECUS Chapter office. Information on the nominal service charge applied to most programs is published in the Library Catalogs.

As of January 1979, the Library contained approximately 1500 active software packages.

MEMBERSHIP

Membership in DECUS is voluntary and is not subject to a membership fee. Members are invited to take an active interest in the Society by contributing to the Program Library, to DECUSCOPE, and by participating in its Special User Groups and symposia. There are two types of membership: Installation Membership and Associate Membership.

INSTALLATION

An organization, institution, or individual that has purchased, leased, or has on order a computer manufactured by Digital Equipment Corporation is eligible for Installation Membership in DECUS. Membership status is acquired by submitting a written application to the appropriate Chapter Executive Secretary for approval by the Chapter Executive Board.

On acceptance of the application for membership, literature covering numerous DECUS services is sent to the Installation Delegate for reference and aid in maintaining active participation in the Society.

ASSOCIATE

Any person, who is not an appointed Installation Delegate, who has a bona fide interest in DECUS is eligible for Associate Membership.

Like Installation Members, Associate Members receive DECUSCOPE, the Society's quarterly newsletter, automatically. They may receive other DECUS material on request. Written application indicating desire to join must be submitted to the appropriate Chapter Executive Secretary for approval by the Chapter Executive Board.

On acceptance of the application for membership, literature covering the numerous DECUS services is sent to the member for reference and to enable active participation in the Society.

To become a member of DECUS, please return this form to the appropriate Chapter office listed below.

NAME:_____

COMPANY:_____

ADDRESS:_____

_____

CITY:_____

STATE/COUNTRY:_____ ZIP:_____

Membership Requested (check one):

☐ Installation ☐ Associate

January 1979

DECUS OFFICES

DECUS Australia
P.O. Box 491
Crows Nest, New South Wales 2065
Australia

DECUS Canada
P.O. Box 11500
Ottawa, Ontario K2H 8K8
Canada

DECUS Europe
C.P. 510
12, avenue des Morgines
CH-1213 Petit-Lancy 1,
Geneva, Switzerland

DECUS U.S. and
Office of the Executive Director
One Iron Way
Marlboro, Massachusetts 01752
USA

SOFTWARE PROBLEMS OR ENHANCEMENTS

Questions, problems, and enhancements to DIGITAL software should be reported on a Software Performance Report (SPR) form and mailed to the SPR Center at one of the following DIGITAL Offices: (SPR forms are available from the SPR Center).

AREAS COVERED	SPR CENTER
United Kingdom Middle East	DIGITAL EQUIPMENT CORP., Ltd. Fountain House, Butts Center RG1 7QN READING / England
Austria, Poland, Hungary, Rumania, East Germany, West Germany, Russia, Czechoslovakia, Bulgaria	DIGITAL EQUIPMENT CORP., Gmbh Wallensteinplatz 2 8 MUNICH 40 / Germany
Israel	DECSYS COMPUTERS, LTD. Yirmiyahou Street 4 TEL AVIV 63505 / Israel
France	DIGITAL EQUIPMENT FRANCE Silic 225 18, rue Saarinen 94528 RUNGIS Cedex / France
Italy	DIGITAL EQUIPMENT SPA Viale Fulvio Testi 117 20092 CINISELLO/BALSAMO (Milan) Italy
Denmark	DIGITAL EQUIPMENT CORP. APS Kristineberg 3 2100 COPENHAGEN 0 / Denmark
Finland	DIGITAL EQUIPMENT CORP. OY P.L. 16 02201 ESPOO 20 / Finland
Norway	DIGITAL EQUIPMENT CORP. A/S Pottenmakerveien 8 OSLO 5 / Norway
Sweden	DIGITAL EQUIPMENT CORP. A.B. Englundavagen 7 17124 SOLNA 1 / Sweden
Switzerland, Spain, Greece, Portugal, Yugoslavia, Cyprus, Algeria, Morocco, Malta, Tunisia, Turkey	DIGITAL EQUIPMENT CORP. S.A. 9, route des Jeunes 1211 GENEVE 26 / Switzerland
Holland, Belgium, Luxemburg	DIGITAL EQUIPMENT BV Kaap Hoorndreef 38 UTRECHT/OVERTRECHT / Holland

AREAS COVERED	SPR CENTER
United States, remainder of Far East, Africa, Latin America	Administrative Services Group, SWS P.O. Box F Maynard, MA 01754
Canada	Digital Equipment Canada P.O. Box 11500 Kanata Canada K2H 8K8 Ontario
Australia (Melbourne)	Digital Equipment Aust. Pty., LTD. 70-74 Park Street South Melbourne, Victoria Australia 3205
Australia (Sydney)	Digital Equipment Aust. Pty., LTD. 123 - 125 Willoughby Road P.O. Box 491 Crows Nest NSW Australia 2065
Brazil	Digital Equipment Comercio Ind. Rua Batatais 429 Esq AL Campin 01423 Jardim Paulista Sao Paulo 0100 Brazil
Caribbean	De Latin America P.O. Box 11038 Fernando Juncos Sta. Santurce PR 00910
Japan	Digital Equipment Corp., INTL 3rd Floor - Kowa Building 8-7 Sanban Cho Chiyoda Ku Tokyo 102 Japan
New Zealand	Digital Equipment Corp., LTD Challenge House - 3 Wolfe Street P.O. Box 2471 Auckland New Zealand 10010

DIGITAL EQUIPMENT CORPORATION, Corporate Headquarters: Maynard, Massachusetts 01754, Telephone: (617)897-5111—SALES AND SERVICE OFFICES: UNITED STATES—ALABAMA, Huntsville • ARIZONA, Phoenix and Tucson • CALIFORNIA, El Segundo, Los Angeles, Oakland, Ridgecrest, San Diego, San Francisco (Mountain View), Santa Ana, Santa Clara, Stanford, Sunnyvale and Woodland Hills • COLORADO, Englewood • CONNECTICUT, Fairfield and Meriden • DISTRICT OF COLUMBIA, Washington (Lanham, MD) • FLORIDA, Ft. Lauderdale and Orlando • GEORGIA, Atlanta • HAWAII, Honolulu • ILLINOIS, Chicago (Rolling Meadows) • INDIANA, Indianapolis • IOWA, Bettendorf • KENTUCKY, Louisville • LOUISIANA, New Orleans (Metairie) • MARYLAND, Odenton • MASSACHUSETTS, Marlborough, Waltham and Westfield • MICHIGAN, Detroit (Farmington Hills) • MINNESOTA, Minneapolis • MISSOURI, Kansas City (Independence) and St. Louis • NEW HAMPSHIRE, Manchester • NEW JERSEY, Cherry Hill, Fairfield, Metuchen and Princeton • NEW MEXICO, Albuquerque • NEW YORK, Albany, Buffalo (Cheektowaga), Long Island (Huntington Station), Manhattan, Rochester and Syracuse • NORTH CAROLINA, Durham/Chapel Hill • OHIO, Cleveland (Euclid), Columbus and Dayton • OKLAHOMA, Tulsa • OREGON, Eugene and Portland • PENNSYLVANIA, Allentown, Philadelphia (Bluebell) and Pittsburgh • SOUTH CAROLINA, Columbia • TENNESSEE, Knoxville and Nashville • TEXAS, Austin, Dallas and Houston • UTAH, Salt Lake City • VIRGINIA, Richmond • WASHINGTON, Bellevue • WISCONSIN, Milwaukee (Brookfield) • INTERNATIONAL—ARGENTINA, Buenos Aires • AUSTRALIA, Adelaide, Brisbane, Canberra, Melbourne, Perth and Sydney • AUSTRIA, Vienna • BELGIUM, Brussels • BOLIVIA, La Paz • BRAZIL, Rio de Janeiro and Sao Paulo • CANADA, Calgary, Edmonton, Halifax, London, Montreal, Ottawa, Toronto, Vancouver and Winnipeg • CHILE, Santiago • DENMARK, Copenhagen • FINLAND, Helsinki • FRANCE, Lyon, Grenoble and Paris • GERMAN FEDERAL REPUBLIC, Cologne, Frankfurt, Hamburg, Hannover, Munich, Nuremburg, Stuttgart and West Berlin • HONG KONG • INDIA, Bombay • INDONESIA, Djakarta • IRELAND, Dublin • ITALY, Milan, Rome and Turin • IRAN, Tehran • JAPAN, Osaka and Tokyo • MALAYSIA, Kuala Lumpur • MEXICO, Mexico City • NETHERLANDS, Utrecht • NEW ZEALAND, Auckland and Christchurch • NORWAY, Oslo • PUERTO RICO, Santurce • SINGAPORE • SPAIN, Madrid • SWEDEN, Gothenburg and Stockholm • SWITZERLAND, Geneva and Zurich • UNITED KINGDOM, Birmingham, Bristol, Epsom, Edinburgh, Leeds, Leicester, London, Manchester and Reading • VENEZUELA, Caracas •